COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

Weekly Newspaper-Second-class postage paid at Boston, Mass

Vol. III No. 13 | April 2, 1969 | Price: $9/year

The Terminet 300 can be ordered with built-in paper tape punch and paper tape reader.

GE's New Teletypewriter Transmits at Up to 30cps

WASHINGTON, D.C. — The Terminet 300, a teletypewriter for remote terminal and communications use, has been announced by General Electric. It requires a data set (GE's Dignet 110, 111, 114, or 115, or Bell 103) for telephone hook-up. All transmission is asynchronous.

The unit features speeds of up to 30 characters per second, GE said, which is double the speed of the IBM 2740.

Terminet 300 is typewriter-size (7 in. by 19-3/4 in. by 26-1/2 in.), weighs about 65 pounds, and is said by GE to be conveniently portable.

The unit can be enhanced by addition of optional paper tape devices. The tape reader drives the typewriter at rated speeds, and transmits over a communications line at speeds of up to 120 cps, GE said, and the punch operates at up to 30 cps.

GE claims that reliability and quietness are increased through use of solid-state electronics.

(Continued on Page 2)

Problem-Afflicted User Blames Manufacturer Misrepresentation

By Peter L. Briggs
CW Staff Writer

BOSTON, Mass. — A horror story of unsupported manufacturer's claims, poor support, unexpected downtime, and a resulting chaos at the user's offices was unfolded here last week.

Computerworld was invited, by the user, to sit in on a meeting between the user and the manufacturer on the basis that CW would not disclose the names of the companies involved.

The session revealed, among other things, that the manufacturer's representatives were not informed of the realistic capabilities of the equipment, a small billing computer, nor of the actual degree of support available. As a result, the user's two units were completely overloaded and his overhead costs have exceeded the price of the machines.

Hardware Support Vital

The first area of contention raised by the user was that of proper hardware support. The user pointed out that there was only one service man, albeit competent, in the New England area.

The manufacturer's Northeastern area manager for maintenance services said that he could fly-in backup people within 24 hours. He was then asked why certain service calls over the previous several months had brought no response for more than two days. On one occasion it was three days before the serviceman arrived. The service manager said he was not aware that such a situation had even existed. He felt that there was no excuse for such a delay, under any circumstances.

Downtime Important

When asked about the amount of downtime which could be expected for this type of device (a Teletype-oriented unit with a core memory for program storage and total accumulation), he felt that 10% was normal. He further explained that the equipment was designed for "light duty" (about four to five hours per day) and that the units, as used in the user's shop, would probably suffer even more downtime than the 10% figure.

Claims Unjustified

Many of the problems reverted to the original claims made by the salesman when discussing the proposed purchase. The salesman was provided with pro-

(Continued on Page 2)

Users Take Part in Study Of Need for OS Standard

WASHINGTON, D.C. — Users are strongly represented on the new Standard Control Language Committee of the USA Standards Institute. The group has been formed to study possible standardization of computer control languages.

Millard Perstein of SDC, chairman of the new X3.4.2F committee, said it was formed to try to bring order out of chaos. He said the group does not know whether standardization was feasible or desirable, but it will evaluate the situation and make recommendations about practical ways of implementing changes in control languages.

The committee set up two subcommittees at its first meeting Feb. 4 and 5 at Systems Development Corp. in Santa Monica, Calif.

Users Head Subcommittees

The users group is headed by John L. Little of the National Bureau of Standards. John Reutter of Bell Telephone Labs heads the functions work force.

Although representatives of the Business Equipment Manufacturers Association were instrumental in motivating the establishment of the committee, the users are represented.

About a year and a half ago, Perstein sent out feelers to users and manufacturers on standardizing operating systems. Six months ago, Perstein was given the go-ahead by people in the standards activity to undertake the preliminary move of setting up a committee to study the situation.

(Continued on Page 2)

Survey Shows 48% Use Cobol

AMSTERDAM, Netherlands — Cobol was the favorite language among 48% of 184 users surveyed by the Netherlands Automatic Information Processing Research Center. Assembly Language was second, favored by 37%.

Of the 184 users, 44% reported that they used Cobol for more than 70% of their programming.

The popularity of the language was attributed to the ease with which Cobol programmers could be transferred from system to system.

Information Interchange Code to Be Adopted July 1

WASHINGTON, D.C. — All federal agencies have been instructed to use the Federal Standard Code for Information Interchange, beginning July 1.

Most of the computer and peripheral manufacturers have been designing their equipment within the parameters of the code. The Brooks Bill of 1965 and President Johnson's approval of the standard in 1968 gave the product-planning groups fair warning. Because of this, nongovernment users who see the eventual need for information interchange with federal agencies should be in good

[illegible] users for use of the code will be available only in extenuating circumstances. Cost and efficiency disadvantages will act as the measure in justifying any bypass of the standards.

Dr. Joseph O. Harrison, Jr., chief of the Office of Information Processing Standards, National Bureau of Standards, said, "The importance of the move on the part of the government should not be underestimated. The projections of the checkless society and computer-to-computer conversations are impossible without standard data facilities.

"Of course there are going to be problems," Harrison said, "but we have tried to anticipate them. Federal information processing task groups were established to prepare those affected." These groups of federal representatives have been working in the area of data and hardware capability standards.

The code includes a standard 128-character set, a standard coded representation thereof, a method of representing the coded character set in machine media, and a standard collating sequence. The new standards are to be used for the interchange of information in machine-processible form within and between information systems. They do not, however, extend to the internal structure of the central processing unit or peripheral devices.

All computers and related equipment configurations brought into the federal inventory, acquired or leased, come under the guidelines. They also apply to data systems developed for implementation by [illegible] for government agencies, and to data developed outside the federal government at government expense. Related equipment includes all character-oriented devices in which magnetic tape or perforated tape is produced for input or received as output from a computer-based data system. They also apply to transmission terminal equipment when in support of a computer-based system.

Secretary of Commerce Maurice H. Stans has issued detailed instructions to heads of all federal agencies for the standards implementation. The stated objectives of the move are the "economical and efficient purchase, lease, maintenance, operation, and utilization of automatic data processing."

On the Inside

How ACM Took the Road to Bankruptcy — Page 27

Software Updates, Stores, And Retrieves Programs — Page 18

Applications	16-17
Editorials	8
Education	13
Expansions	23
Financial	21
New Products	6
Societies	12
Software	18

The new GE-410 time-sharing system.

GE's Time-Sharing Family Grows

PHOENIX – A new "junior" member of the General Electric time-sharing computer family has been announced. The GE-410 will serve up to 10 user keyboards and can accommodate up to 40 connected terminals, the company said.

The system is intended for use by large industrial firms, government agencies, and commercial banks as a central, in-house time-sharing facility, GE said.

If desired, the 410 may be used in the multiprogramming batch-processing mode by the addition of extra disks and tapes. Available software includes the Basic and ASA Fortran IV languages and the Edit functions, with the Datanet-30 Communications Executive and the GE-400 Time-Sharing Executive, GE said.

The system is, according to a company spokesman, completely upward-compatible with the GE-430 and 440 systems by the addition of certain specified devices. Moving into the larger systems (servicing 30 or 50 users respectively) requires no reprogramming and no operator retraining, he said.

The system consists of the central processor with a 32K word memory and 6.3 microseconds access time, a console typewriter, two DSU-160 disk storage units, a card reader, and the Datanet-30 Communications Processor. This basic configuration sells for slightly under $500,000 and leases for $10,475 per month. Additional disk storage up to 60 million characters is available as an option.

Deliveries are scheduled to start in August of this year.

User Blames His Problems On Vendor's Statements

(Continued from Page 1)

jected requirements, which have since been shown to be accurate, for the work load expected, the user said. The salesman recommended two machines as the number needed to handle the expected workloads, he said.

The manufacturer, in a letter, had originally promised: "We are completely responsible for the entire system. This means from the initial survey thru [sic] the analysis [sales] tape. This includes designing the system, programs, forms design, operator training, follo-up [sic], etc."

Several areas were discussed at last week's meeting which showed a failure to live up to these problems. The programming, supposedly available last fall, was delivered only one week previous to the meeting. System design was, at best, incomplete, the user felt. Training was adequate for the initial installation, but turnover in help was still unsolved.

At that point the manufacturer said that he would provide follow-up training as needed.

The figures originally supplied to the salesman required 1850 lines of billing per day, and this figure was the basis for the two-machine recommendation.

During the meeting, both *Computerworld* and the user took independent measurements of the actual operation. Tests were run on the routines the manufacturer felt to be ideal, as well as more typical runs. Under the "ideal" case, the operator was able to operate the machines at about 75 billing lines per hour. Under the typical cases tested, the average never exceeded 60 lines per hour.

Based on these figures, two machines could, at best, produce about 1200 billing lines during a normal day. This represents about two-thirds of the required capacity. The conclusion, on the part of the user, was that the machines were nearly saturated during the quietest part of the user's season.

When faced with these figures, the manufacturer said: "We will re-evaluate our estimates based on your current needs and present you with a more reliable estimate." When asked why this situation had arisen, the manufacturer gave no answer.

Users Are Represented In OS Standards Study

(Continued from Page 1)

A source pointed out that many users hadn't realized that they should rise up and be heard. But some users are sufficiently interested, will pay their own way, work hard, and realize that deliberations will be slow, he said. "They are dedicated to standardizing, although they realize that they're biting off a lot," he said.

Retraining Problem

John Little feels that standardization of computer control languages would be a help in personnel training for the users. "It would be easier for a person to go from one operating system to another without retraining or reference to manuals," he said.

Little also stressed that the committee is not a full-fledged standardization committee. "We're looking at the need in the area of operating system control, and the need seems obvious. It's because of the chaos in the wide variety of language control commands presently in use," he said. He stated that standardization would no doubt cut this down considerably.

Persten said that progress reports will be received from the subcommittees at the second meeting, which will be held May 12 and 13 in Boston.

GSA Awards Multiple Contracts To Leasing Firms for First Time

WASHINGTON, D.C. – The General Services Administration has awarded leasing contracts for punched-card equipment to five separate bidders.

This is the first time GSA has solicited competitive bids on a government-wide basis for any type of EDP equipment. Previously all such EDP equipment had been procured on a systems or package basis.

It is government procurement policy to shift from sole source to competitive bidding when the agency learns that there is more than one vendor with sufficient equipment available to meet the government's requirements.

H.A. Abersfeller, commissioner of GSA's Federal Supply Service, stated last month [CW, March 12] that peripherals need not come from the same vendor that supplies the mainframe, nor even all from the same peripherals maker.

GSA had no comment on the contract awards, but sources indicated that out of a total of $6.6 million that is currently expended annually in rentals, the move will represent a savings of $2.5 million annually.

The awards were: 1585 units to MAI; 210 units to LMC; 71 units to Cyber-Tronics; 241 units to DPA, and 46 units to IDP.

30cps Terminal Unveiled by GE

(Continued from Page 1)

The unit has 94 characters, including upper/lower case capability. USASCII code is used.

Two print-line lengths are available: 75 or 118 print positions.

The basic Terminet 300 is reported to cost $3400. Production is scheduled to begin in May, with GE quoting August delivery.

DATA COMMUNICATION IDEAS?

Talk to Tally

Here's the answer to branch office data communications, the Tally 1021 Data Terminal. This mag tape unit accepts data from serial or parallel modems. Input/output typewriters, card readers and paper tape readers. Data can be transmitted or received at up to 1200 wpm. Parity checking and unattended operation are standard. Hard copy printout is 155 wpm.

Write or call Tally, 1310 Mercer Street, Seattle, Washington 98109. Phone: 206-624-8760.

COMPLETE COMPUTER SYSTEMS

Priced To

SELL

No. 1

1401 – B4 – 1402, 1403
1406-1 and 2 – 1311's

No. 2

1401-C-4 with numerical print control - 1402, 1403-2, 1401-1 and 4 729 II tape units.

No. 3

1620-20 K, 1622 and 1311 - III optional 40K with 1623

All equipment under IBM M/A

Call or Write

Ralph Graves
Computer Acquisitions Co.
P.O. Box 29185
Atlanta, Ga. 30329
(404) 638-8090

Please use This Form For Your Change of Address

Please attach your current mailing label and supply the new information requested below.
Allow 25 days for change of address to take effect.

Send this information to: Circulation Manager, CW, 60 Austin Street, Newton, Mass. 02160.

ATTACH
COMPUTERWORLD
MAILING LABEL

Card 1 New: Title (49–56)
Name (31–48)
Company Name (57–79)
Card 2 New Address (15–37)
City (38–51) S.A. (52 53) S.C. (54 55) for office use only
New Zip Code (56–60)

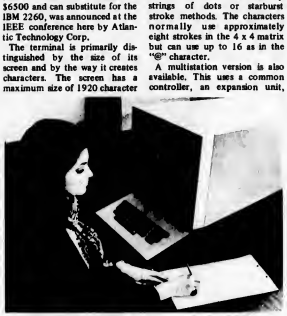
360-Compatible Video Terminal Has 1920 Character Positions

NEW YORK – A new, IBM 360-compatible terminal which sells in its stand-alone version for $6500 and can substitute for the IBM 2260, was announced at the IEEE conference here by Atlantic Technology Corp.

The terminal is primarily distinguished by the size of its screen and by the way it creates characters. The screen has a maximum size of 1920 character positions and each character is made with cursive strokes on a 4 x 4 matrix rather than by strings of dots or starburst stroke methods. The characters normally use approximately eight strokes in the 4 x 4 matrix but can use up to 16 as in the "@" character.

A multistation version is also available. This uses a common controller, an expansion unit, and between one and 32 displays. In this configuration, each expansion unit can handle up to 1920 characters which can be spread over eight terminals if each is using only 240 characters.

Typical applications for the ATC 2000 display terminals include centralized inventory control, airline reservation systems, management information retrieval, and cargo handling operations.



The new ATC 2000 series display was shown at the IEEE conference in New York. The screen can hold up to 1920 characters, each 0.15 in. high by 0.12 in. wide.

Software

The ATC 2000 uses the same software as the IBM 2848 and 2260 display units. ATC points out that this insures users against disruptions in periodic improvements in System 360 programming. Such improvements, ATC says, have obsoleted previous attempts to maintain 360 compatibility.

The basic interface is with an IBM 2701 teleprocessing data adaptor and data transmission rates of up to 4800 bits per second can be handled.

Manufacturing

The manufacturing methods involve medium-scale integration using Texas Instruments' transistor-transistor logic-integrated circuits and a read-only core memory.

The screen is completely refreshed every 16 milliseconds, so maintaining a 60 cps rate. The company believes that this allows an unusual degree of "flicker freedom" for the characters, although noting that no display is really completely flicker-free.

Options

Optional packages add the use of lower case characters and sixteen-line segments to permit limited graphic capacity ,including bar charts.

Software Association Membership Now Numbers 12 as CCA Signs Up

By a CW Staff Writer

CAMBRIDGE, Mass. – Computer Corp. of America is the latest company to join the Association of Independent Software Companies. CCA is the 12th firm to become a member.

The association is promoting patent laws to protect software.

"The lifeblood of the independent software firm is proprietary software," CCA President Thomas Marill said. "Substantial financial and manpower investments are made in software development. The originator, especially the smaller independent firm, deserves the same patent protection that is given companies in manufacturing industries.

If it is not given," Marill said, "we will continue to be at the mercy of the industry giants."

SOFTWARE CLEARING HOUSE

If you want to sell proprietary software programs

OR

You are looking for software programs

USE

A professional EDP software clearing house

Contact

AUTOMATED INFORMATION SYSTEMS, INC.

BOX 304
NEEDHAM HEIGHTS 94, MASS. 02194
617-449-2220
Branches in Springfield, Mass. and Ridgewood, New Jersey

Ever wonder what everyone's doing... on each job ...each hour...and how much it's costing you?

with **PROMPT**™ you can stop wondering ...You'll Know!

PROMPT, or Program Monitoring and Planning Techniques, is the new management control package developed and application-proved by ARIES Corporation. PROMPT provides detailed computerized reports to all levels of management so that they know exactly what's happening at any phase of the program cycle . . . down to the most basic task performed by each man, every hour of the day. Effective implementation of PROMPT will drastically reduce expensive cost, manpower and schedule overruns since it can accurately pinpoint these problem areas sufficiently in advance to enable rapid correction.

PROMPT is adaptable to any computer operation.

PROMPT assures that all levels of management get the information they need, when they need it, so that any problem can be quickly and efficiently corrected.

PROMPT optimizes deployment of available resources, and feeds back historical data for estimating costs and evaluating individual performance.

PROMPT provides maximum return on your management investment while being easy to use and economical to run.

If you're looking for a better way to plan, monitor and control your projects, look into PROMPT. For complete information, write or call.

ARIES CORPORATION
PRODUCTS DIVISION Westgate Research Park
McLean, Virginia 22101 • Phone: (703) 893-4400

Time-Shared Problem Solving for the Electronic Engineer

- CODED — Advanced CIRCUIT analysis including AC, DC, Transients; non-linear elements and transistors are modeled
- FILTER — Response Analysis of Filter Networks
- FOURIER — Fast Fourier Transform Analysis
- LAPLACE — Computes Inverse Laplace Transforms
- ANALOG — Flexible Digital Simulation of Analog Systems, Models Differential Equation Solutions.

For more information about these or DIAL-DATA's many other problem-solving services call or write:

DIAL-DATA, Inc.
429 Watertown Street
Newton, Massachusetts 02158
(617) 244-2580

New York (212) 349-1680 Washington (301) 762-8510 St. Petersburg (813) 531-7704

Subscribe to Computerworld

see page 4

First NCR Century Installation – 3 Months Later

TORRENCE, Calif. – Following up on the first installation of a NCR Century 100 computer, at Cal-Metal, CW talked with data processing manager Frank Hill about the way in which NCR has supported his work, and the feelings of the company about the new computer.

No Significant Problems

The first point brought out was the over-all smoothness of the entire procedure. The machine arrived Nov. 21 and was completely operational by the 22nd. A few small problems occurred with the printer, but the support was excellent. No significant delay occurred in getting the machine running.

Time Savings

Prior to the Century 100 installation, the company had been operating three shifts per day to handle the work load. With the current 50% split between the two systems (the old NCR 500 and the Century) they are operating on one six-hour shift per day, and have not yet saturated the Century's capabilities. Hill feels that one shift will be sufficient for the entire operation, once conversion is completed.

Documentation Excellent

Another point Hill brought out was that, "The documentation was written in English, rather than computerese." There were no problems understanding what was intended by the manuals, and they were current and correct at all levels.

The installation is using the new language, Neat/3, developed to facilitate application programming, and is very happy with it. An example of the ease with which it can be used was pointed out by Hill. The previous system for handling the annual W-2 forms required a 13-hour run to complete the job. This year they started on a Wednesday, redesigned the W-2 system, wrote the system in Neat/3, and mailed out the W-2s Friday morning of the same week. The total run time was under six hours.

A minor problem developed in the Sort program, according to Hill, but the support people from NCR were able to get around it in less than two days. This type of support, Hill said, "makes us very happy, and our company officials very happy."

Not Happy With ADS

The one area where Hill had certain reservations was the Accurately Defined Systems (ADS) documentation technique. He said that the amount of paper needed, and the amount of writing required, made the operation almost an "overkill." The goals of the approach were excellent, but the implementation was too cumbersome.

Other Users Happy

In asking other recipients of the new machine the same type of questions, the DP managers reported similar reactions to CW. They felt that support was excellent, problems were minimal, and the support network working far better than they had thought possible.

Programmer Don Begbie sets up the console for a run.

Loading the high-speed paper tape reader

The two-spindle disk drive stores working records, programs, and system software.

Console typewriter works on multiprogramming basis to avoid disrupting work flow.

COMPUTERWORLD
THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

TM Reg. U.S. Pat. Off.

Weekly Newspaper – Second Class Postage Paid at Boston, Mass. Published every Wednesday by COMPUTERWORLD, Inc., 60 Austin St., Newton, Mass. 02160. Telephone: (617) 332-5606 & TWX: 710-335-0635. Copyright 1969 by COMPUTERWORLD, Inc.

Alan Taylor, *Editor*. Robert M. Patterson, *News Editor*. Evelyn Cowell, *Special Supplement Editor*. Neal Wilder, *National Sales Manager*. Margaret Phelan, *Circulation Manager*. Henry Fling, *Art Services Supervisor*. Kate Rachstein, *Typesetting Services Supervisor*.

Patrick J. McGovern, *Publisher*. W. Walter Boyd, *Associate Publisher*.

Subscription rates are: $9 for one year, $16 for two years. Add $1 per year for Canada; $3.50 per year for Foreign. Please send all editorial and subscription material to: COMPUTERWORLD, 60 Austin St., Newton, Mass. 02160. (617) 332-5606.

Reproduction of material appearing in COMPUTERWORLD is strictly forbidden without written permission. Send all requests for permission to the Editor.

COMPUTERWORLD
THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY
SIXTY AUSTIN STREET, NEWTON, MASSACHUSETTS • 02160 • TELEPHONE (617) 332 5606

Yes, please send me COMPUTERWORLD for . . .

☐ 1 Year $ 9.00
☐ 2 Years $16.00 ☐ Bill Me
☐ 3 Years $20.00 ☐ Payment Enclosed

AA

Name
Your Title
Co. Name
Address
City
Zip Code

Return to:
COMPUTERWORLD 60 Austin Street, Newton, Mass. 02160

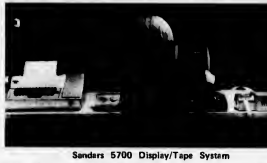
Please Circle 1 Number and 1 Letter:

YOUR TITLE AND/OR FUNCTION?

A. Operational Management (nonengineering)
B. Computer Professional Staff
C. Corporate Officers
D. Engineering Management
E. Engineering/Scientific
F. Production/Maintenance
G. Sales/Marketing
H. Other _____

COMPANY BUSINESS:

1. Mining or Construction
2. Manufacturer/Computer or Data System
3. Manufacturer/Other
4. Utility
5. Wholesale/Retail
6. Finance
7. Consultants/DP Services
8. Business Service (except DP)
9. Educational/Medical/Legal
10. Government/Military
11. Other _____



Sanders 5700 Display/Tape System

Display to Punched Tape System Permits Operator to Verify Input

NASHUA, N.H. – Two keyboard display CRT-to-punched paper tape systems have been announced by Sanders Associates, Inc.

Designated the 5700 series, they allow visual checking of information before it is punched into 5 or 8-channel tapes.

The input station is the key to the operation. It has a dedicated paper tape reader, a keyboard, and a CRT. In a typical application, the operator reads a format program into memory, setting up proper tab stops. Then she reads in repetitive information and keys the information which differs from record to record. All this appears on the CRT, which the operator can check against the source documents and correct by insertions, deletions, and typeovers. Corrected information is then sent directly to a common punch, which takes records on a first-come, first-served basis.

There are two units. The 5708 is an 8-channel unit which handles 64 ASCII characters. It can have up to three input stations and one high-speed punch, Sanders said.

The 5709 can handle either the 64 ASCII characters or 5-channel (Baudot) information. It can have up to 12 input stations, Sanders said, and ASCII and Baudot readers and punches can be intermixed for simultaneous transmission, the company said.

Both units can read at up to 45 characters per second (limited by CRT refresh rate) and can punch at up to 180 characters per second, Sanders said.

A 5708 with one control unit, three 1024-character memories (one per input station), and three stations, rack-mounted, sells for $22,225 and rents for $794 per month, the company said. Both the 5708 and the 5709 are available for three-month delivery.

Expansion Foam Protects Tape Libraries From Fire

NEW YORK – A system to protect magnetic tape libraries from fire and radiant heat has been developed and tested by Shell Oil Co.'s New York Data Center.

The heart of the system is a foam composed of water and a synthetic liquid, which undergoes a 500-to-1 expansion generated by a fan. Tests measured the system's efficiency in protecting against radiant heat, accidental open flame, and an incendiary missile, and determined the effect on tape in standard cannisters of prolonged immersion in foam.

Each of the heat and flame tests showed that temperatures inside the cannisters were held well below the 130° - 150°F danger range specified by the tape manufacturer. None of the tests showed water vapor getting into cannisters.

Some interesting conclusions were drawn:

1. The system appears to protect against Molotov-cocktail-type sabotage.

2. If the source of heat is below the library, tapes near the floor will come into contact with heated foam which may damage them.

3. An additional safety factor is the fact that the temperatures were recorded in empty cannisters – tape wound under tension will heat up less quickly.

4. The foam doesn't damage clothes, so that tapes can be retrieved immediately after a disaster.

5. Foam can be controlled, and is not fully expended, as in a CO_2 system, providing backup protection against re-ignition.

6. It leaves a residue, but the 500-to-1 expansion means that the cleanup problem is limited.

Assisting Shell in the tests were the 3M Company, which made the tape, and Don Knapp, Inc., representing Rockwood Jetex, which developed the system.

Firm Reduces Prices On Drives, Memories

BOSTON – Price reductions of up to 20% on Adage MTP7 magnetic tape transports and on selected core memory subsystems, available on Adage Graphics Terminals Models AGT/10, AGT/30, and AGT/50, have been announced. The reductions have been made possible by increased demand for Adage Graphics Terminals and by production economies.

IBM KEY PUNCH COMPUTER PROGRAMMING SERVICE
FAST ACCURATE SERVICE
COMPETITIVE CONTRACT RATES
PICK-UP DELIVERY CONN.–R.I.
UPS DELIVERY ELSEWHERE
LARGE AND SMALL JOBS HANDLED WITH EASE
CALL 203-446-8523 EXT. 127
DATA PROCESSING SERVICE CORPORATION
40 PLAZA COURT
GROTON, CONN. 06340

Plotting Speed up... Costs Down!

The new TSP-12 Plotter-Controller is designed to reduce your initial cost, your terminal time, and your CPU time. Time-sharing enters a new, fast, economical phase with the TSP-12. Here is a Plotter-Controller that curves and angles pen or CRT display with a facility and accuracy you once had to pay more than twice the price to achieve. Easy to use, simple to plug in, the TSP-12 interfaces with Teletypes or 2741 Terminals equipped with 103 Series "Dataphones." 101C data sets or acoustical couplers. Sub-routines ready to go in FORTRAN and BASIC. Ask us — we'll show you how to share computer time fast, frequently and for far less.

Request Bulletin CW-3/10

ISP CORP.
TIME SHARE PERIPHERALS CORPORATION
Box 361, Wilton, Connecticut 06897

QUIET AS A

The Gates Acoustinet, Series 750, will bring a new quiet to your office machines. This acoustically engineered unit absorbs noises...at the source. Here is a "work station" of contemporary styling that effectively muffles noise without interfering with operator access or machine servicing. Office managers will appreciate the increased efficiency of all personnel in an office now as quiet as a ____.

For details to quiet any office machine write...

Box 1406-4C

GATES ACOUSTINET, INC.
Santa Rosa, California 95403 - (707) 544-2711

IOA has everything you need in data processing equipment...from 024's to 360's...total computer systems including software...for sale, rental or lease.

CALL IOA
FIRST AT 212-673-9300

IOA

IOA DATA CORP., 383 Lafayette Street / New York, New York 10003

TLW Computerworld Corner
COMPUTERS FOR SALE

IBM – 1401 B4-Disk
A complete system, with disks and console inquiry. Printer 600 LPM, Punch/Read, Model 1. Immediate Delivery.

GE 415
A complete 32K system, 1200 LPM printer, six 30 KC tapes. Excellent Bank system. August Delivery.

IBM 7070 – 10K
A nice system available for immediate Delivery. Excellent for second system.

IBM – 1440 – 12K
A large 12K system with many excellent features, 1442, 1443 (144 print positions), 1447 and three 1311 disks. June Delivery.

TLW does the total job. We have experience and satisfied customers.

Box 29763, Atlanta, Ga.
(404) 633-3579

TLW COMPUTER INDUSTRIES

Communications Controller Relieves Central Processor

ROCKVILLE, Md. — A new communication control system will relieve the heavy communications load on central processors of the size range of IBM's 360 Models 60, 65, and 85 and Univac's 1108, according to Comcet, Inc.

The Comcet 60 includes a 32-bit parallel processor with 900 nanosecond memory from 32,768 to 131,072 bytes. It has 16 high-speed general-purpose registers, four general-purpose

input/output channels, and 64 independent communication channels.

These channels can handle any type of line service at speeds between 2000 and 230,400 bits per second or more, depending on the modems used. A communications hardware transfer rate of over 1,800,000 bits per second can be achieved; hardware interrupt tabling and buffer toggling are credited.

The Comcet 60 prices "run in the same range as the multiplexor and line termination equipment now in use at the central processor," Comcet says.

Comcet, Inc., 2 Research Court, Rt. 70-s and Shady Grove, Rockville, Md. 20850.

New Products

Multiple-Use Console

A new, integrated console system can be used as a remote batch terminal, as an on-line conversational station, or for off-line peripheral operations, the company says. The CC-36 Televideo Conversational/Batch Station includes a 300 card-per-minute reader and a portable nonimpact 300 character-per second, 80-column printer.

This basic system sells for $23,900, and can be enhanced with a keyboard for operator control and data entry, a television screen, and an interface for remote communications at up to 50,000 bits per second. For multiple copies, or larger column printouts, an impact printer is available. A station can be controlled by stored instructions.

Computer Communications, Inc., 701 W. Manchester Blvd., Inglewood, Calif. 90301.

Line Printer

The PRT-130 is General Electric's new line printer for the 100 series of small computers.

The printer is rated at 1100 lines per minute and operates under the supervision of either Disk or Tape Operating System. It will lease for $1150 per month.

GE also announced the PTP-120, a 150 character-per-second paper tape punch, also for the 100 series. The PTP-120 leases for $350 per month, and sells for $13,500.

General Electric, Small Com-

puter Marketing Operation, Bridgeport, Conn.

64-Character Printer

A line printer, the Mark IV, that prints 80 columns at 1050 lines per minute using a 64-character set, has been designed for data communications, remote terminal applications, and small computer systems.

It will print up to six copies.

The Mark IV print hammer is designed to be replaced in less

than two minutes, with standard tools. Data Products Corp., 6219 De Soto Ave., Woodland Hills, Calif. 91364.

Tape Reader and Handlers

A photoelectric paper-tape reader, PTR-723, and three related tape handlers, PTH-300, 500, and 1000 have been designed for digital data handling, communications, numerical control, phototypesetting, and other programmed systems.

The handlers operate at 30, 50, and 100 inches per second respectively, at 10 characters per inch.

Bidirectional reading and high-speed rewind are standard on all three handlers. They feature quick-release reel hubs and dancer-arm lockout for easy loading.

General Electric, Information Devices Dept., Oklahoma City, Oklahoma.

Low-Speed Card Reader

A low-speed card reader, Speedreader 300, can be used in data communications systems and with small and medium-scale computers. The reader operates in demand mode at up to 300 cards per minute. A flexible blade picker follows variations in card shape.

SR-300 can be interfaced with any computer system. Maintainability is improved by use of TTL circuitry, and by solid-state plug-in modules, the company claims.

The reader is 20 in. wide, 15 in. high, and 22 in. deep, and weighs about 70 lbs.

Data Products Corp., 6219 De Soto Ave., Woodland Hills, Calif. 91364

Stored-Program Accounting

A new, stored-program accounting machine, the 6435, is capable of storing 160 instructions from punched cards, and is optionally expandable to 320. The instructions control repetitive processing steps, calculation, and printing.

A 6430, with console card reader, will rent for $450 per month and sell for $15,750. With reader and punch, rental is $740 per month and the selling price is $27,100. First customer deliveries are scheduled for the fourth quarter of this year.

IBM, Data Processing Div., 112 East Post Rd., White Plains, N.Y. 10601.

2400-Bit Data Set

A new data set, Modem 2200/24, transmits at 2400 bits per second over dial-up or dedicated leased lines.

It is a four-phase modem, compatible with most existing four-

phase units, such as the Western Electric 201B.

The set includes circuitry techniques found in eight-phase units and is a one-unit duplex set. The price is $2350 with delivery starting this summer.

International Communications Corp., 7260 N.W. 36th Ave., Miami, Fla. 33147.

Phone Translation System

Compute-A-Phone, a Touch-Tone to remote keypunch translation system, will accept full alphanumeric information, entered by different combinations of two Touch-Tone buttons, and will also code, onto cards, various elementary arithmetic functions, such as add, subtract, multiply, divide, total, and clear.

The system is simple, for it needs only a template over the user's Touch-Tone buttons to give the combinations for arithmetic and message functions, and a translator located at the site of the remote keypunch.

Applications already being performed include truck dispatching, transmission of engineering drawing requests, dairy cooperative customer order processing, and medical billing.

Photo Magnetic Systems, Inc., 10750 Tucker St., Beltsville, Md. 20750.

General-Purpose Terminal

A movable-keyboard data entry console, the LC-728, functions as a general-purpose ter-

minal, providing two-way communication with a computer.

It is part of the LC-720 Data Entry System, for entry onto magnetic storage media from several terminals.

Logic Corp., 15 E. Euclid Ave., Haddonfield, N.J.

Wideband Data Systems

Diginet 400 is a new series of wideband data systems that will handle computer data, facsimile, and wideband voice messages. The systems include baseband and carrier data sets, vestigial sideband modems, and repeaters. The units communicate synchronous or nonsynchronous duplex serial binary digital data at up to 50,000 bits per second.

Data sets for computer terminal interface are housed in a desk-top cabinet; repeaters and

sideband modems which communicate with communications equipment installations come in two different rack-mounted, shallow-depth designs.

Diginet TDM 401 and 402 are baseband data sets for high-speed digital interface with equipment such as magnetic tape terminals, a computer or high-speed remote terminals. They condition the digital data for transmission over cable pairs.

Diginet TDM 403 baseband repeaters are for extended distances between a baseband data set and a Diginet 400 system component such as another baseband data set, a carrier modem, or a carrier data set.

Diginet TDM 420 and 421 vestigial sideband modems interface the baseband transmission from a TDM 401, 402, or 403 with carrier equipment.

Diginet TDM 422 and 423 carrier data sets are vestigial sideband data modems which interface directly with the data terminal for applications where terminal and carrier equipment are near each other.

Diginet 400 systems may be configured in point-to-point, multipoint, and switched communication networks. The digital interface is basically the same regardless of system configuration or whether the interface is with a Diginet baseband or carrier data set.

Section P, General Electric Communications Products Dept., P.O. Box 4197, Lynchburg, Va. 24502.

FOR SALE

** IBM/360 Model 40 131K, 2311 Disks, Control Unit
** IBM 360/30 65K, 1051, 1052
** 1401 12K Tape System
** 1440 16K Disk System

GEORGE S. MC LAUGHLIN ASSOCIATES, INC.
785 Springfield Avenue
Summit, New Jersey 07901
(201) 273-5464

Computer Lessor
Computer Dealer
Computer Broker

3 DAY PROGRAMMING SERVICE? 3 DAY PROGRAMMING SERVICE!

Year-end pressure? Last-minute requests? Quarterly and annual jobs not yet programmed?
We will deliver the output within 3 days of receiving your specifications. We say 3 days, we mean 3 days. The cost will be no higher than you pay for far slower, conventional programming assistance.
Call 212-751-5280 today for details on a fundamental breakthrough in programming that brings software out of the stone age

REMOTECH COMPUTER SYSTEMS, INC.
645 Fifth Avenue New York, N.Y. 10022 • 212-751-5280

WANTED

729 Model V Tape Drives

Major Company wishes to purchase four (4) 729 Model V Tape Drives for 1969 delivery. Please supply complete information, serial numbers, delivery date, and price. Shenandoah Life Insurance Company, P.O. Box 2421, Roanoke, Virginia 24010

Employment System Said To Handle All Job Types

By Patricia Coffey
CW Staff Writer

SALT LAKE CITY – What is described as the only computer system that finds jobs for workers in a full occupational spectrum is being utilized here by the Utah Department of Employment Security.

People may now receive job referrals in minutes rather than days, according to Curtis P. Harding, department administrator. Harding said that Utah was selected by the federal government for the job-matching pilot project. It took two years of planning and implementation.

"The present system was designed by the state and federal governments and adopted by the data processing people," he said. Harding said they wanted to find an ideal system. Although other jurisdictions are using computerized job matching, Utah's is the only system that covers the full occupational spectrum, he said.

The three-month-old system is expected to handle 80,000 applicants and 50,000 jobs a year.

Employers with job openings phone an employment security office. From there, job specifications are transmitted from a video data terminal over telephone lines to an RCA Spectra 70/45 computer. The computer searches through its files for persons whose skills match the specifications.

The same process occurs when a job-seeker registers. The file is sifted to see if his qualifications can be matched to a vacancy. If not, they are stored electronically for later matches. When he secures a job, his name is removed from the files.

An employed individual seeking an improvement in his job may also make use of the system.

Harding said that several thousand job-seekers and openings are being matched each week.

During the national election campaign last summer, President Nixon expressed interest in the use of computers to help match workers with jobs. "I think if a computer can match boys and girls for dates, it can match men and jobs," he said.

4th GE-600 System in Operation

SCHENECTADY, N.Y. – A $3 million GE-600 series information processing system has been installed here to provide Mark II time-sharing service to users throughout the Northeast.

Installed in GE's Information Processing Center at 60 Washington Ave. here, it is the fourth such system in operation. Others are in Los Angeles and Cleveland.

The system supplements the Mark I time-sharing service provided over the past three years by three smaller GE-200 systems.

The larger memory capacity of the Mark II service enables users to prepare and process programs approximately twice the size of those using the Mark I service, at speeds up to 10 to 15 times faster, GE said.

Service will be available to users in such upstate cities as Utica, Syracuse, Rochester, Buffalo, Binghamton, Elmira, Poughkeepsie, and Albany; and to Vermont and Massachusetts.

Linnell Electronics Officers Resign

CHERRY HILL, N.J. – More details became available last week regarding the recent resignation of James Linnell from Linnell Electronics, a subsidiary of Memory Magnetics Inc. Apparently, not merely did Linnell resign from the presidency, but the other officers also resigned, including the treasurer, M. Greenberg, and the sales director, Lawrence Brownsey.

Wes Powers, president of Memory Magnetics, told CW that he didn't feel it was very unusual that the presidents of both Athana Corp. and Linnell Electronics, two of MMI's major subsidiaries, should have resigned from the firms that bore their names. "A person may be a very fine engineer, but that doesn't mean that he makes a good president," Powers said. "I just could not agree with some of the sales policies."

Linnell said that Powers had urged the officers not to resign but they had all insisted on doing so.

The production situation at Linnell appears to be that eight disk drives have been completed but only one or two have been sold.

In the meantime, the stock-trading suspension order against the Comstock Keystone Corp., the former name of Memory Magnetics, continued in force although an audit was said, by company spokesmen, to have been completed and presented to the Securities and Exchange Commission.

Tape to Card Units Shipped

NEW YORK – Mohawk Data Sciences Corp. has begun shipping a new line of magnetic tape-to-punched card subsystems to end-user customers.

The subsystem, consisting of a Mohawk Data-Recorder cable connected to an MDS 6013 card punch, converts records on magnetic tape to punched cards at 200 cards per minute. By using Data-Recorders with transmission capabilities, the new devices permit tape-to-tape transmission of data and conversion of cards at a remote site.

The card punch, which includes an echo check to insure punch accuracy, lists for $21,500 and rents for $488.50 per month with maintenance. The total subsystem carries a minimum list price of $28,700 and a monthly rental of $625, depending on the model of Data-Recorder used.

A NEW GENERAL PURPOSE PAYROLL AT 1/4th USUAL COST...ALL STANDARD FEATURES...PLUS

Minimum Computer Equipment Configuration –

- IBM System 360 Model 30 or above
- 32K Core Including Supervisor
- Either Disk or Tape Oriented
- Disk May be Either 2311 or 2314
- 3 Tape Drives for Totally Tape Oriented System

A Multiple Company Service Payroll with Complete Flexibility for Reporting Regular Time, Overtime, Shift Premium, and Up to 8 Other Company Defined Payments. Extensive Tax Calculations.

PAY PERIODS – Weekly, Bi-Weekly, Semi-Monthly, Monthly

ACCUMULATION – By Quarter and Year-to-Date

OTHER FEATURES – Includes Multiple Checks and Automatic Deposits. Payroll and Labor Distribution from Same Input.

EXTENSIVE PERSONNEL INFORMATION – For Ready Retrieval TOTAL PRICE – $4500

INCLUDES –

- Complete Systems and Programming Documentation
- On-Site Customer Orientation & Instruction
- 1 Full Week Installation Assistance if Required
- 90 Day Guarantee Against Program or System Errors
- One Year Systems Maintenence Optional – $800

AVAILABLE – Delivery and Installation 60-90 Days from Contract

For Further Information Write or Call
GENERAL COMPUTER SERVICES, INC.
HUNTSVILLE INDUSTRIAL CENTER
P.O. Box 4163
Huntsville, Alabama 35802
(205) 539-9492

four numbers

202/293-3910 WASHINGTON

301/539-5188 BALTIMORE

213/542-1501 LOS ANGELES

415/626-7157 SAN FRANCISCO

that can save you six figures

The concept of saving money through the purchase of used data processing equipment is no longer the exclusive property of a few EDP supermanagers. Let I-C-E's professional staff show you how to take advantage of these savings. Call or write for descriptive literature.

Corporate Headquarters:
1231 25th ST., N. W., WASHINGTON, D. C. 20037

INTERNATIONAL COMPUTER EQUIPMENT, INC.

I-C-E

Editorials

Plan for Progress

One of the news items from the IEEE show deals with a 360-compatible terminal which the manufacturer says can replace the IBM 2260. The ATC 2000, however, can hold many more characters on its screen than can the 2260. This presents users with both an immediate problem and a long-term one.

Immediately, of course, it means that people who have the IBM unit must re-examine their needs and see whether they really could use the compatible unit with advantage. This is a standard problem that is hitting users more and more frequently as compatibility comes into reality.

But even more important than this is the second-level problem. As compatibility clearly is coming, it is no longer reasonable to design systems simply for the equipment that is currently available. The progression of displays from small to large has been only one of the apparently inevitable results of progress. When the compatibility feature is added, however, it suggests that an analyst should design a system so that it can be changed every six months or so instead of every three or four years.

How it will change, of course, will not be known in many cases. But contingency factors – like the possibility of a unit with a larger display – are now such a likelihood that they should be included in the original systems analysis.

This is not often done. The likelihood of major changes in a short time span has been so slight that any decisions about them are normally taken only *after* the new units have become available. Frequently this is so costly that it may prevent the new units from being properly considered.

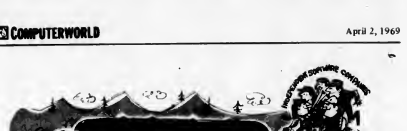
However, this cost could be avoided if it were realized that progress is inevitable, and if analyses were made, on a contingency basis, of the four or five most likely advances in the technology at the time when it is least expensive – during the original study.

Help a Datamation Reader

Readers of the March *Datamation*, reading of IBM Vice-President George Beitzel's statement on "Fourth Generation" compatibility, may feel like the man who came into a detective movie half an hour after it started. Reasonably so – because they have got only half of the story.

What they weren't told is that the whole IBM internal newspaper article was on the subject, "The Fourth Generation – Competition," and that Beitzel was supposed to be answering the question, "Do you see the next generation as having program compatibility?" Understanding his answer, without knowing the question (or even that there was a question!) is practically impossible.

So – if you do know a *Datamation* reader who is not also a *Computerworld* reader, won't you help him and let him know what the real content of Beitzel's remarks was? (To help you, we are reprinting the full article on page 9.)



"Theek Goedeess, Semeone Fiedly Remembered the Wheels!"

Letters to the Editor

Canning Challenges Editorial Demanding ACM Explanation

I wish to take exception to your editorial of March 5, titled "Full Explanation Needed." You imply that ACM representatives to Afips, with either unparalleled generosity or just plain shortsightedness, "gave away" a large share of future Afips surpluses, under the new constitution. Such is not the case.

If you had studied both the old and the new constitutions carefully, or had asked any of the Afips board members, you would have found the following:

Under the old constitution, the surplus was determined *after* funds were approved for Afips-sponsored projects. Under the new constitution, the surplus is determined *before* any projects are considered. Further, the framers of the new constitution were aware that there is a rapidly growing number of requests for Afips funds to sponsor worthy projects. The new constitution allows Afips to continue to sponsor projects but not at the expense of the surplus to be distributed to the three societies. ACM not only will not get less but may well get more income under the new constitution.

Richard G. Canning
ACM Representative
Afips Executive Committee
New York

As the title of CW's editorial "Full Explanation Needed" suggests, what is sought is light, not heat. We did not imply anything: we merely stated that the financial implications for the ACM of the new Afips constitution are substantial (a definite limit is set on what funds Afips can transfer to the members such as ACM), and as the ACM is now in financial distress, an explanation of the implications should be offered. Canning's own presentation of the new Afips constitution to the ACM Council failed in this important regard.

Computerworld has studied both the old and the new constitutions carefully. Indeed, it appears we have studied the new one more carefully than the people who OKed it for release. (See next letter.) – ACM members still need a full explanation. Ed.

CW Congratulated for Noting Error in the Afips Bylaws

Congratulations on picking up the typo in our bylaws [CW, March 19). They should of course read, Afips "shall not engage in any substantial activity which is in direct competition with activities of its constituent societies." The error occurred in preparing the printed version.

Bruce Gilchrist
Executive Director
Afips
Montvale, N.J.

Disk Pack Damage, Not Drive Damage, Seen as Real Problem

Again the manufacturers are greedy hy trying to strong-arm users into using only their disk packs by making head damage to their drives a customer cost.

Nonsense. In over 50,000 hours of 1311/2311 use (unfortunately with costly manufacturer's packs) we have never had head damage.

On the other hand, two packs have been destroyed by (1) main metal arm snapping from fatigue, and (2) whole mechanism overriding crash stop barrier.

Hence, in my opinion, in practice the manufacturers will be more concerned with paying for competitive packs (and not being able to replace with their own packs at cost), than in collecting head damages.

George W. Warner, CDP
Director, Management Control Systems
Aberdeen Manufacturing Corp.
New York

For First-Time Users

Univac Systems Have a Lot to Offer

By A.B. Williams
CW Staff Writer

Univac's recently announced Mark II models of the 9200 and 9300 processors, supported by 8411 disks, tapes, and faster printers, are aimed right at the first-time user.

Mark II is on the nose. Previously, the 9200 was limited to cards and the 8410 mini-disk. The 9300 could have tape, but the larger 8411 disk was reserved for the 9400 user. Printers were the "integrated" units – 250 lines per minute on the 9200, 600 lines per minute on the 9300. The offerings were attractively priced – the new ones are, too. Univac's early 9000 series came with the understanding that to get faster peripherals, the user would have to get a larger processor. This has now been changed.

The 9000 series software reflects the changes. The 9200 was originally offered as a card system, then enhanced with the 8410 disk. The 8410 was supported by input/output software only – no operating system, no compilers. This, too, has changed. Both the 9200 and the 9300 will have Cobol, RPG, and an assembler for tape and disk, and a tape Fortran.

The announcement had two nuggets that may not be quite so obvious. When a facter printer is attached via a multiplexor, the integrated printer can be released to serve as an output-system message writer – at considerably higher speeds than competitive keyboard printers. The 350,000 byte-per-second selector channel offers an opportunity to speculate about future Univac announcements of larger, faster mass storage units. The 8411 doesn't use half the selector channel's capacity, and it places the greatest demand on the selector of the current 9000 series peripherals.

An attempt to prolong the life of the user's processor is good news. Mark II does that. Other manufacturers will be doing more of this in the future – out of sheer necessity, if not for altruistic reasons.

Every announcement in we small-scale market makes it more

(Continued on Page 9)

An Interview With DP Group's Assistant General Managers

"Fourth Generation"..Competition..

G.B. Beitzel, IBM vice-president and assistant general manager – plans & controls, DP Group.

T.C. Papes, assistant general manager – operations, DP Group.

What will be different about the "Fourth Generation"?

MR. BEITZEL: We have built the business, not in terms of generations, but in terms of better service for the dollar. The great promise for the future is in work started months and sometimes years ago. Future announcements will be determined not by a "liberal" or a "conservative" announcement policy, but rather by the best way to get better price performance out into the field and get it there before the competition does. 1

MR. PAPES: I see another indicator of our business philosophy by looking at the specific developments under way. If you looked at our major projects a year ago, you'd see that we are shooting for higher goals today – more performance, more function, more capacity, more equipment that is competitive. We are swinging with the technology. As the technology presents us with an opportunity to do better, we are moving right ahead and improving what we have. We intend to continue in the leadership role.

When we introduced System/360, customers had to reprogram, essentially, except for the emulation projects. Do you see the next generation as having program compatibility? 3

MR. BEITZEL: When we announced the System/360, we asked the data processing community to "reset to zero." We did this because of the proliferation of languages, machine architecture, and input and output devices. Incompatibility and proliferation meant customers were paying a premium price to go much further in computing. That was our judgment. It has been more than vindicated by System/360's reception in the marketplace. 2

Where do we go from here? We have a great debt to ourselves and to our customers to maintain some consistency between where they are today and where they are going to be in the future. But I don't think we will do this at any price. If something comes along we think is a substantially better way to get price performance into the market, we would not hesitate to change.

The above article appeared in December, 1968, in an internal IBM publication. Its meaning is currently under discussion, with *Computerworld* warning that it appears that the Fourth Generation *may* be program-incompatible and calling for a clear statement from Beitzel – who, according to the full article, is apparently already in a position to know (1).

In response, Beitzel claims that he was quoted out of context and reiterates his "statement" (2), but ignores the question he was supposed to answer (3). This is the full article.

New Systems Aimed at First-Time Users

Continued from Page 8)

obvious that a prospective new user should do a good deal of homework. He should define quite closely what he needs to make the break from pure card or manual to computer. This will determine the company's real needs. They often may be simply stated, as, "How much will you do for us by way of programming and systems help?" They should also include an honest attempt to determine when the installation can become independent of the vendor's help in getting on the air, and a look into the future sufficiency of the processor under consideration.

"How much more can I do efficiently with the processor we're talking about?" is another question, and one which Univac is beginning to answer.

As a vendor deeply committed to the small-computer user, Univac is not alone. IBM is a household word; 360/20 is perhaps the first small computer that comes to mind. Other vendors deeply committed to the service of the first-time user are Honeywell, with the 110 and 120; NCR, with the Century series; and GE, with the 100 family. Each sells a different combination of strengths in hardware, software, and support. Since the first computer decision is so important, the would-be user is well-advised not to sign with the first vendor who calls. One may satisfy his particular needs better than the others.

A Univac 9200 Mark II system.

A service of Computer Research Corporation and The Boston Company Inc.

fast

financial analysis via shared time

for more information about this time-shared service specifically designed for the investment decision maker, write: Computer Research Corporation, Financial Services Division, 429 Watertown Street, Newton, Massachusetts 02158 Telephone (617) 969-7150

For Sale
B5500 System

Central Processor
2 I/O Channels
8 Memory Mods (32K)
6 Mag Tape Units (66KC)
1 Card Reader (800 CPM)
1 Line Printer (700 LPM)
1 Card Punch (300 CPM)
3 Disk Mods (10MS)

Contact
Mr.G.Ahmuty
Allie & George
Wendy Lane
Westport, Conn.
(203) 227-8534

Will Sell All Or Part Of The System

COMPUTER PROFESSIONALS

"IF I COULD ONLY TAKE THE GUESSWORK OUT OF MY CAREER DECISION..."

How many times have you said it . . . or at least thought it? Well, there's a better answer today than ever before—the new CPC DECISION GUIDE—prepared by and for computer professionals. It's an evaluation tool which applies scientific comparative principles to what all too often has been an emotional decision. Emotion is out! *Objectivity* is in!

THE CPC DECISION GUIDE helps you apply professional personnel techniques in the privacy of your home. First you rate your present job. (You may be surprised to discover how well it scores.) Then you rate other opportunities objectively for comparison.

THE CPC DECISION GUIDE is the nearest thing yet devised to consulting personally with a professional counselor. We recognize that many men are hesitant to seek job counselling, yet would like to have the benefit of up-to-date job information end objective help. The CPC DECISION GUIDE is a move in the direction of bringing our kind of help to *you*. We believe you'll want to follow through and discuss your career objectives with one of our men. Mike Potts, Bill Geery, Al Macdonald, and Bill Alton can provide information on several current job opportunities, so you'll have sufficient data to use the CPC DECISION GUIDE to its fullest effectiveness. When all is said and done, there's no substitute for personal contact and accurate information. These we offer you at CPC—*anytime* and without charge. Client companies pay all fees.

OLD FASHIONED?

We're a bit behind the times in that we *don't work with people or companies we don't know*. We're not interested in placing one man 5 times. We are interested in placing 5 men once. There's a *right* place for you in EDP. If you're not in it, we'll help you find it. And in the process, we'll get to know you well. It may be an old fashioned approach . . . but it works.

The new CPC DECISION GUIDE is free for the asking. Call 641-1790 or use the coupon below. The Guide will introduce you to our way of doing things—the professional way. We still have copies available of our 1969 Chicago-area Salary Survey. Ask for one.

MAIL THIS COUPON TODAY!

Name_____

Title_____

Address_____

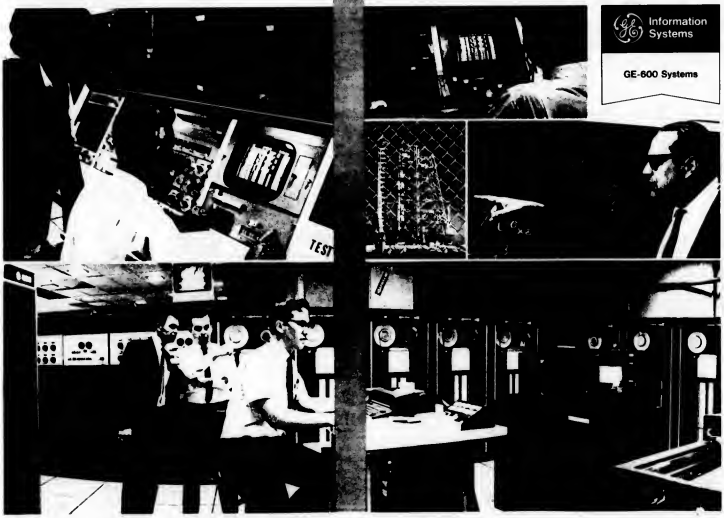
City_____

State_____ Zip_____

COMPUTER PERSONNEL CONSULTANTS, INC.

230 N. MICHIGAN AVENUE • CHICAGO, ILLINOIS 60601
312–641-1790 • Consultants—personnel licensed

A GE-635 handles the Apollo launches.



Information Systems

GE-600 Systems

But it has other things on its mind.

The same things you worry about every day: printing the payroll, engineering calculations, accounting . . . "The GE-635 is the only information system anywhere that could perform the real-time data processing for the Apollo launch — and handle other necessary processing at the same time," says Dr. R. H. Bruns, chief of the Data Systems Division at Kennedy Space Center. "It is beyond compare."

Credit the people at NASA for a cost-saving decision. Rather than buy individual computers for specialized jobs, they chose a single information system with the ability to handle many programs concurrently — a GE-635 system.

The 3-Dimensional Information System

This same ability could be important to you. Because of it, a single GE-635 can operate in 3 dimensions, all at the same time:

1. **Local processing.** Replace your duplicate computers and their duplicate staffs with a powerful, central GE-635 system. You'll be able to handle dozens of jobs concurrently, so you'll get more work out faster.
2. **Remote processing.** Inexpensive input/output computers link directly with the central GE-635. This gives your satellite operations the full power of the GE-635 from any distance.
3. **Time-sharing.** Easy-to-use time-sharing terminals give your key people instant access to vital information, speed up their calculating ability.

That's why we call the GE-635 the world's only 3-Dimensional Information System. The Apollo launches have proved that it works successfully. Let us prove it to you. Call your GE Information Systems Sales Representative. Or write General Electric, Section 290-27B, 1 River Road, Schenectady, N. Y. 12305.

Computer marketing representatives—we're expanding our sales force to represent advanced products like this. Call R. C. Lonergan collect at (602) 941-3860 or write him at 3500 N. Central, Phoenix, Ariz. 85012.

GENERAL ELECTRIC

DIRECTOR

COMPUTER OPERATIONS

Will be responsible for operations of a computer center network whose goal is to optimize a percentage of gross profits by efficiently utilizing computer time, personnel and other center resources. Our business is to service accountants, schools, hospitals and manufacturing companies, using packaged programs.

The ideal candidate will have at least 2-5 years' responsible management level operations experience on a 360 computer – or comparable equipment – utilizing MFT or MVT operating systems. Must have a knowledge of establishing operational standards in addition to strong leadership qualities.

Starting salary: to $22,000 plus, depending on quality of experience. Our staff knows of our requirements. Please send complete resume in confidence to:

Computerworld Box # 3047

Real-Time Systems Conference Planned

ENCINO, Calif. – Based on the response to the call for papers for the 1969 Computer Group Conference, four major sessions have been announced: Off-Line Computer Systems in Hospital Data Management; Real-Time Systems for the Management of Acutely Ill Patients; Computer Modeling and Analysis; and Biomedical Computing.

The conference, which has as its theme "Today's World of Real-Time Systems," will be held June 17-19 in the Leamington Hotel, Minneapolis, Minn.

In addition, the technical program will also cover such topics as high-speed data communications, software testing through functional simulation, small time-shared systems, on-line information retrieval systems, languages for process control, and new system designs to meet specific real-time requirements.

Further information may be obtained from Robert M. Kalb, conference chairman, Univac Division of Sperry Rand, 2276 Highcrest Drive, Roseville, Minn. 55113.

Supervisors Still Cry for Relief From Paperwork, Survey Finds

NEW YORK – Wall Street managers aren't the only ones drowning in a sea of paperwork these days. According to a recent nationwide survey (total of 1100 responses) conducted by the American Management Association's *Supervisory Management* magazine, two-thirds of those supervisors responding said that half or more of their time is taken up with shuffling papers.

Though the samplings were deliberately weighted on the side of production supervisors, 63% of the respondents said they supervise office activities, as against 37% for plant activities. This suggests a strong trend toward greater administrative responsibilities for all supervisors regardless of the type of activity in which their company is engaged. Hence, in the questionnaire space reserved for comments, the many requests for help with clerical problems and paperwork management.

The name is PISORT and Programmatics could do it because Programmatics is in the software business. Strictly. PISORT is an amazingly simple piece of plug-in software that's fully compatible with IBM's DOS sort program. Programmatics guarantees that PISORT will not only cut your sort time in half; it will cut your disk space in half at the same time. PISORT includes all the features of DSORT and utilizes the same JCL and sort control cards. What you have to have, of course, is an IBM 360 with 65K or more operating on DOS. Which doesn't mean that all you OS people should defenestrate yourselves. We're working on our OS PISORT now. Lease, license and lots more good information is available on request. By now, you've probably rationalised that your IBM Sort is free. Which is true. But you've got to admit that it's only half fast.

PROGRAMMATICS
11661 San Vicente Blvd., Los Angeles, Calif. 90049
11401 North Shore Drive, Reston, Virginia 22070

Univac Users Elect Young

WHITE SULPHUR SPRINGS, W. Va. – Arthur P. Young of Remington Rand has been elected president of the Univac Users Association, succeeding James S. Nelson of U.S. Gypsum Co.

Others elected at the spring conference here were George J. Popp, Jr., Harris Trust & Savings Bank, vice-president; and Seaton B. Milne, Bell Telephone Co. of Canada, secretary.

The UUA, which held its first formal conference in 1957, is designed to bring the Univac user together with the company representatives to exchange information and ideas.

The association holds semiannual conferences. The next will be held at the Sheraton Palace Hotel, San Francisco, Sept. 16-18.

COMPUTERWORLD
Advertising Sales Offices:

New York City:
Don Fagan
Grant Webb & Company
509 Madison Ave.
New York, N.Y. 10022
(212) 688-7550

Midwest:
Dennis Collins
Grant Webb & Company
333 N. Michigan Ave.
Chicago, Ill. 60601
(312) 236-5817

San Francisco Area:
Bill Healey
Jules E. Thompson Co.
1111 Hearst Bldg.
San Francisco, Calif. 94103
(415) 362-8547

New England:
R. Ziegel
COMPUTERWORLD
60 Austin St.
Newton, Mass. 02160
(617) 332-5606

Los Angeles Area:
Bob Byrne
Sherwood/Byrne Assoc.
1017 N. La Cienaga Blvd.
Los Angeles, Calif. 90069
(213) 657-6221

Elsewhere:
Neal Wilder
National Sales Manager
COMPUTERWORLD
60 Austin St.
Newton, Mass. 02160
(617) 332-5606

Attendance Data Input by Card Dialers Helps School Monitor 63,000 Students

PONTIAC, Mich. – A computer is taking attendance daily for some 63,000 school children here and is credited with helping to reduce tardiness and absenteeism in the Oakland Schools.

Oakland Schools is an intermediate district serving 28 local school districts within Oakland County. Oakland officials say theirs is the only system in the country in which the total attendance function is provided by a single electronic transmission from participating schools.

The computer compiles and distributes attendance figures so swiftly that school officials are able to spot and analyze trends and take positive action before attendance problems develop. Computer-generated statistics already have revealed that about 80% of those pupils who enroll as much as a day late drop out before the semester is completed.

Merlin K. Reeds, director of the Oakland Schools Division of Data Processing, said he has been told by guidance counselors that poor attendance often has its roots within the family and may be traced by a careful examination of pupil records through elementary, junior, and senior high schools.

"This computerized record-keeping allows a social worker to pay but a single call on a family regardless of the different schools its children may attend," he said.

Reeds said some schools within the districts have dropped from the head of the list on poor attendance as a result of knowledgeable officials' use of tardiness and absenteeism reports provided by the computer.

An IBM 7770 audio response unit is activated when individual schools tap out a code on a Touch-Tone phone and instructs callers, "Please send school ID." This is done by inserting telephone card dialers coded with the name of the school, type of attendance – daily, hourly, etc. – and the period covered.

Next, the computer tells the caller, "Please send attendance." This is accomplished by inserting the attendance card dialers for pupils who are tardy or absent.

The completed data is transmitted to a 360/50 which provides printouts for use by individual school officials.

"Early intervention in cases of excessive absenteeism has resulted in a substantial decrease in the number of pupils referred to the authorities under the compulsory attendance law," Reeds said.

He said the information on attendance trends provided by computer-generated statistics also will be used in analyzing the whys and wherefores of perfect attendance.

"Guidance counselors feel that if we can find out a little about the attitudes of those pupils who never miss a day of school, we may also shed some light on the other extreme," he said.

Barbara Gordon, 14, uses a card dialer unit at John F. Kennedy Junior High School to feed attendance data to the computer.

Computer Law Grant Offered

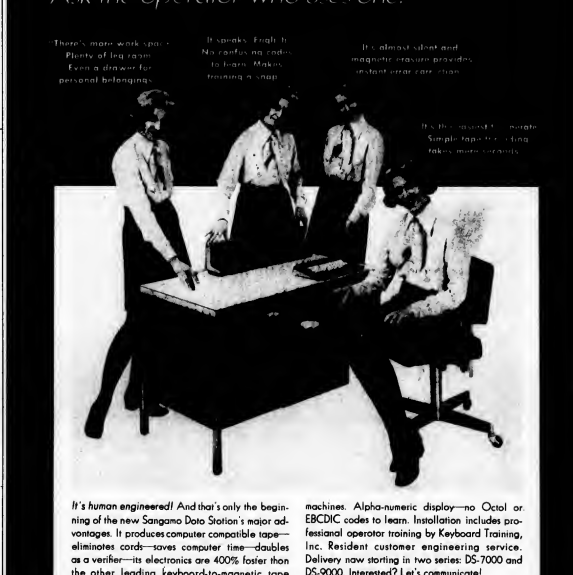
WASHINGTON, D.C. – The National Law Center of The George Washington University is offering, under its Computers-In-Law Institute, a computers-in-law graduate research fellowship.

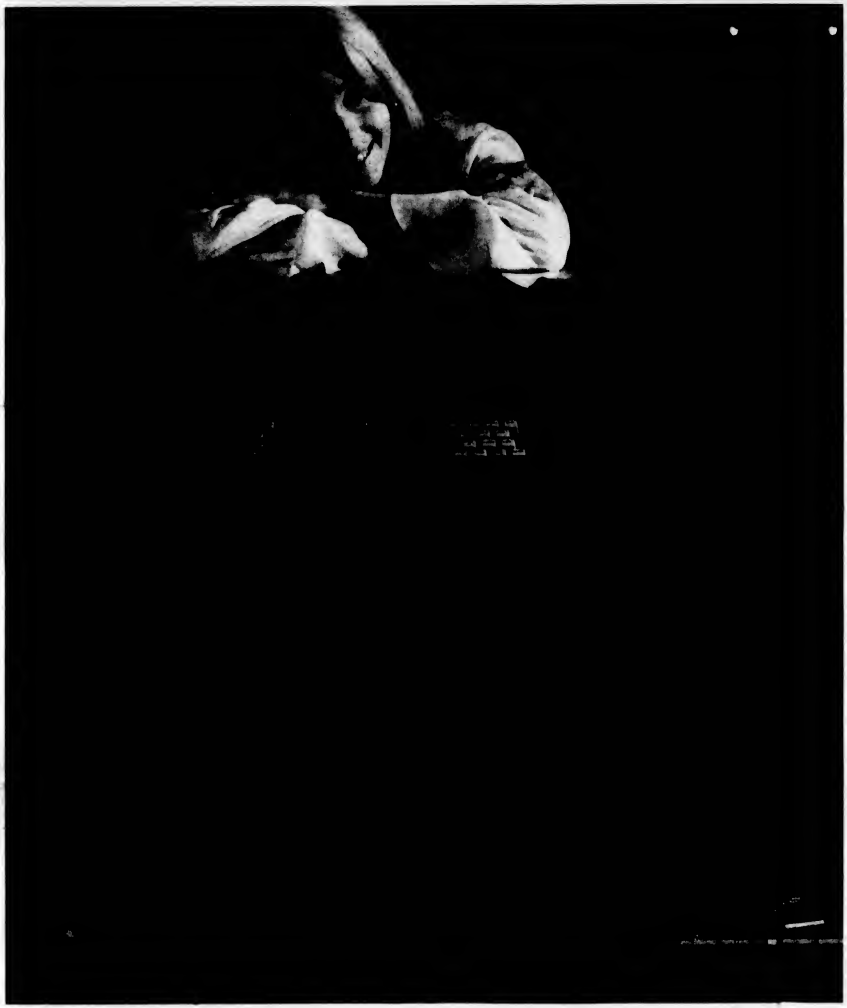
This fellowship is for the nine-month academic year. The stipend is in the amount of approximately $7800 (which includes $1800 for tuition). It will be awarded for research and related study in the combined computer and law disciplines.

The research fellow must hold an LL.B. (or equivalent degree) and will be expected to be competent in some aspect of computer technology, including sufficient ability in at least one programming language to code his own programs. University courses in software or hardware will be available, if needed, as part of his Master of Laws degree program.

The fellow will undertake an approved program of research and study under the direction of a faculty member associated with the Computers-In-Law Institute. This program will lead to an LL.M. degree after two semesters of residence.

For fellows successfully completing the first year, a follow-up J.S.D. fellowship of approximately $8800 for the succeeding year may be available, the university said.





If you're considering keyboard-to-tape, consider your operators.

Ty-core has.

By now you've heard all the arguments in favor of converting your data input processing from keypunch to keyboard-to-tape. Basically keyboard-to-tape is faster and lower in cost. Two excellent reasons for converting. The big hang-up, however, has been the time and trouble it takes to retrain your operators. Note: "has been". Now, of the many keyboard-to-tape units offered today, one is designed specifically for simplified training and operation. It is manufactured and marketed by Ty-core.

The Keyboard

The keyboard of the Ty-core operator station is arranged in keypunch format. The operator uses the system she's accustomed to. The one difference is "touch". The Ty-core keyboard utilizes optical rather than conventional mechanical switching. The result is a true "typewriter feel" similar to that of the most expensive electric machines, enabling the operator to maintain speed with maximum efficiency. A mechanical interlock prevents depressing two keys simultaneously.

Any one of 1800 programs can be selected, entered and automatically verified.* Any record length can be selected – up to 240 characters. Operation of "duplicate", "skip", or "left zero fill" is automatic at virtually instantaneous speeds. Mode switching is simplified by use of keyboard keys with front panel selection.

Field Control

A field control display, located on the front panel, identifies the field and tells the operator exactly where she is within the field at any time. This exclusive feature* simplifies operation and helps to increase productivity by eliminating field errors.

Error Display

A unique error display "talks" to the operator in plain English. There are no cross matrices or BCD lights to interpret, and no bouncing rows of numbers to decode. If the operator is in column 119, the number 119 is displayed in ¾" numerals. If the character (K) is in question, the (K) is displayed.

Ty-Tape

In the Ty-core system, data is keyed directly from the keyboard to a Ty-tape cartridge. This eliminates the need for threading and handling tape-to-tape reels and prevents data loss or tape damage. The cartridge is virtually indestructible and may be used over and over.

Data Pooling

A Data Accumulator accepts data from one to one hundred operator stations. This enables the supervisor to pool data, making one large reel from the outputs of individual operator stations. Pooled data from the Data Accumulator is in IBM compatible form.

* Optional

Strictly Personal

Additional "human engineering" factors incorporated into the design of the Ty-core keyboard-to-tape system are worthy of mention. The operator's station is available in a variety of handsome decorator color combinations. The unit is operated at comfortable desk-top level using a modern desk and contour-comfort chair. The desk even has drawers for the operator's personal things . . . a feature not available in most competitive units.

Strictly Business

Ty-core keyboard-to-tape stations rent for as little as $99 each per month. The Data Accumulator for $180. Operator training has been cut from weeks to hours by utilizing modern audiovisual techniques. For additional information write on your company letterhead.

See A Demonstration

Ty-core hospitality suite, Sheraton-Plaza, Boston, May 14, 15, 16. Use our "door-to-door" limousine service from the War Memorial Auditorium to the hotel.

ty-core

P.O. Box 69, 80 Turnpike Road
Chelmsford, Massachusetts 01824
(617) 256-7525

All the News That Fits, We Print' Could Be Computer Editing Theme

By Joseph Hanlon
CW Staff Writer

EASTON, Pa. – "All the news that fits, we print" should be the theme of newspapers using a computer program to cut copy to fit their news pages.

The program, Anpat (American newspaper publishers' abstracting technique), drops paragraphs from an article to shorten it to a predetermined length. The program is intended only for wire-service copy, such as is provided by the Associated Press or United Press International, and can be used only by newspapers that use wire-service copy without further editing.

Wire services provide articles to newspapers in the form of hard copy (typed on a teleprinter) or punched paper tape that can be fed directly to linecasters. Anpat uses the paper tape to read the article, cut it to a predetermined number of lines, and then produce a new tape for the linecaster.

Cutting is done only by dropping paragraphs. Anpat does no rewriting or rearranging.

In deciding which paragraphs to cut, Anpat gives each word a numerical weight (giving extra weight to key words and capitalized words, for example). These weights are added to assign a weight to each paragraph. Finally, the article is cut by dropping the least important paragraphs, according to these weights.

Cutting from the middle creates a problem that Anpat has not been able to solve, however. Anpat makes no attempt to find out if two paragraphs are related, and consequently it may drop a paragraph identifying a speaker, but retain the next paragraph in which he is quoted. Similarly, it may drop a paragraph introducing a new idea, but retain subsequent paragraphs explaining that idea.

Only Partially Ready

Erwin Jaffe, research director of the American Newspaper Publishers Association Research Institute here, explained that Anpat is really designed for use in combination with a much larger system which has not been fully developed. Such a system would probably contain a CRT unit with editing capabilities which would allow the copy editor to make changes, and then produce a revised paper tape.

Currently there is no easy way to make changes in paper tape, so Anpat is of use to newspapers that run only wire-service copy without editing.

Jaffe admitted that, "Anpat as it exists is not perfect," but he said that it is important as "a first step into the editorial area, where no one has done anything about automating the work flow." He also noted that it is "a relatively simple program for an inexpensive computer (the IBM 1130."

Two newspapers are currently using Anpat, according to Jaffe, but he refused to identify them.

NOTICE TO ADVERTISERS

Our Industry's Semi Annual Gathering of The Clan is almost here . . .
SPRING JOINT COMPUTER CONFERENCE (SJCC)
War Memorial Auditorium, Boston, Mass.

May 14, 15, 16

Interest is high . . . as well It should be . . . The Joints are excellent occasions to highlight your sales efforts.

COMPUTERWORLD helps you highlight with TWO issues for Spring Joint, just like we did in 1967-68.

1. SJCC Preview Issue – mailed May 7th (one week before the show opens)
   5-6000 issues distributed by Computerworld to show attendees – May 14th
   (a) Issue date is May 14
   (b) Color closing – April 18
   (Space reservations & mechanicals)
   (c) Pub. set closing – April 25
   (Space reservations & copy)
   (d) Black and white closing – April 28
   (Space reservations and mechanicals)

2. SJCC Show Issue – mailed May 15th
   5-6000 issues distributed by Computerworld to show attendees – May 15th
   (a) Issue date is May 21
   (b) Color closing – April 25th
   (Space reservations & mechanicals)
   (c) Pub. set closing – May 2
   (d) Black and white closing – May 5
   (Space reservations & mechanicals)

All orders, mechanicals must be received at COMPUTERWORLD, 60 Austin St., Newton, Mass. 02160, by 5 p.m. EST on closing date stated. Any exceptions must be confirmed IN WRITING by the Computerworld Advertising Department.

These closing dates are in effect only for these SJCC issues . . . before and after, it's Business As Usual . . . ,Friday closing for the next Wednesday's issue. We're closing earlier to serve you better. SJCC is important to you, we want to give your add the best possible service. AND THINK ABOUT THIS . . . FOR THE MONTHLIES, SJCC closed last week. ONLY in COMPUTERWORLD do you have the chance to improve your product ad – up to the end of April. That's why we say . . . the only thing faster than the fast-moving Computer Industry is COMPUTERWORLD . . .

The first and only NEWSWEEKLY for the Computer Industry.

Computer graphics aided architect James Dickson in the design of this unusual model house.

Computer Graphics Aid In Designing Model House

CLEVELAND – Computer technology was used by architect James Dickson as an aid in designing a $50,000 walk-through model house built for the 1969 Cleveland Home and Flower Show.

To double-check perspective and sight lines, architect Dickson used a computer to convert two-dimensional drawings into three-dimensional values. The computed graphics were handled by the University of Washington, College of Architecture and Urban Planning, Department of Architecture.

David L. Bonsteel, assistant professor, headed the computer graphics group. Georg Schwalm-Theiss and Henricu Verschure, graduate students, organized and executed the work.

In outlining reasons for using computed graphics, architect Dickson said, "Plans or working drawings give the architect a two-dimensional picture. After a structure is built, visual problems sometimes loom up in the most unlikely places. The computer provided us with a series of line drawings of the house from any given point of view. Thus, any aesthetic problems could be studied and resolved before we started building."

Bonsteel said the group provided 12 exterior views. Computer time was 46 seconds on an IBM 7094-7040 DCS computer. Plotter time was 40 minutes on an EAI 3500 table plotter.

The program which enabled a three-point perspective projection to be calculated and plotted for each station point, was developed by the Urban Data Center, Department of Civil Engineering, University of Washington, and modified by the university's department of architecture.

Procedures steps were as follows.

1. Preparation of polygon data (two or three-dimensional closed planar shapes) describing environment to be pictured. This involved translating the building geometry into numerical values (X, Y, Z coordinates) of each point plotted.

2. Preparation of plot data describing station point, focal point, and cone of vision for each view.

The project was one of a series that has been carried out in the university's department of architecture as studies concerned with the simulation of visual experience in architecture.

The complex four-bedroom, four-bath, two-story home makes the most of interior space and thus was an ideal subject.

RAF's Record and Pay System Called Most Technically Advanced

By a CW Staff Writer

GLOUCESTER, England – A computerized record and pay office system, described as the largest and most technically advanced in its field in the world, has been placed in full operation by Britain's Royal Air Force.

Centered around a Univac 1107 computer, the system is installed at the RAF station at Innsworth, near here. Primary benefits of the system will be increased administrative efficiency and considerable economies in clerical manpower. Another asset from the system is expected to result from the ability to forecast manpower requirements rapidly from the concentration of information.

The file records relate to personnel and pay data of upwards of 100,000 airmen and airwomen, some 20,000 serving officers, and reserve forces.

The records are used for allocation of manpower to every RAF unit throughout the world, management of careers, preparation of statistical information, issuance of pay statements, and provision of contingency plans for overseas emergency reinforcement and mobilization.

When fed with basic codes relating to a change of any type of record, the computer automatically updates all relevant records and produces a multitude of exception and warning printouts and other essential management information.

Taking 10 years to complete, from the initial feasibility study to full operation, the record and pay system is estimated by RAF officials to be five years ahead of any other similar system.

The software programming in the system has been designed in modular structure form to minimize the amount of rewriting required when amendements to the system may be needed.

The complete 1107 system includes a main memory of 65,000 words, two high-speed FH-800 random access drums storing 9.4 million characters of information, 11 magnetic tape units, three high-speed printers, and two paper tape reader/punch units.

Computers Keep Track Of Weather and Ships

MENLO PARK, Calif. – There was a time when sea captains looked at the sky, held a moistened finger to the air, then charted a course and set sail. They took their chances against the unknown weather and seas.

Today's professional skippers rely on the most up-to-date weather data, and many now depend on a computer to aid them in keeping abreast of the weather and plotting their courses.

To help merchant ships cross the oceans through areas of best weather, Pacific Weather Analysis Corp. uses a computing system which keeps track of the rapidly changing ocean weather and as many as 300 moving ships at a time.

By studying ocean weather maps and the location of each ship, meteorologists at Pacific Weather Analysis can advise captains of the most favorable courses to steer. Each ship receives advice periodically by radio.

"By recommending initial courses and en route course changes that offer the best winds and seas, we can reduce a vessel's ocean-crossing time by 12 to 24 hours," said Bill Dupin, Pacific Weather Analysis vice-president. "As we study the weather ahead of a ship, we can develop very minor course changes that will help the captain avoid adverse conditions and ensure the safety of his ship, cargo, and crew."

Frequently, a course change of just a couple of degrees will affect a ship's total voyage and arrival time significantly," he added.

Captains also rely on information provided by Pacific Weather Analysis to determine how best to stow and lash-down their cargoes in preparing for the weather ahead.

"Keeping track of 100 to 300 moving ships at a time and the constantly changing weather around the world is a huge task," Dupin said. "If we had to track each ship manually, we couldn't keep up. But the computer system handles the job without error, day and night. Without missing a thing, it constantly monitors the progress of each ship and can pinpoint the location of a ship at any given moment."

Weather information from Teletype machines is fed into the IBM 1130 system, along with periodically teletyped position and course reports radioed from ships served by Pacific Weather Analysis. A plotting device attached to the 1130 automatically prepares maps every six hours showing the position and course of each ship and the prevailing weather at numerous locations across the seas.

The maps also show "sea and swell" – the prevailing disposition and currents of the waters.

"We constantly receive weather data from every legitimate source, including domestic and foreign weather bureaus, satellites, and ships," Dupin said.

Pacific Weather Analysis has offered course changes that saved up to six days' crossing time.

A meteorologist checks computer-produced maps showing the location of ships and the prevailing weather over the Atlantic and Pacific Oceans.

COMPUTER TIME

TIME BROKERS, INC.

COMPUTERWORLD
software

GE-400 Software Offered For Accounts Receivable

By a CW Staff Writer

PHOENIX – An accounts receivable system for the GE-400 line of computers has been announced by GE. The package can serve both single and multi-location companies having a variety of businesses.

The new system automatically posts, updates, bills, and identifies delinquent accounts. Many different weekly and monthly reports are produced, and are said to provide a thorough insight into financial trends and more effective financial control of business operations.

The system is, according to GE, suitable for banks or computer service bureaus, as well as for manufacturing firms. The system is currently processing more than 12,000 open accounts in the accounts receivable section of GE's Construction Materials Division in Bridgeport, Conn.

Commenting on the division's installation of the accounts receivable system, C.A. Renouard, manager of manufacturing industry development, said implementation of the new system resulted in marked reductions in receivables processing time due to: 50% reduction in input preparation time, 80% reduction in error detection time, 10% reduction in the average number of days an account is open, and a reduction of two-thirds in the time originally devoted to processing monthly customer statements.

The package operates in any GE-400 computer with 16K words of memory, five tape drives, a card reader, a card punch, and a high-speed printer. The program is also adaptable to disk storage, if desired.

For further information about this package, a brochure entitled "GE-400 Accounts Receivable System" (#GEA-8800) is available from General Electric, Dept. 6-207, Schenectady, N.Y. 12305.

New Software Package Stores, Retrieves, and Updates Programs

BOSTON – A new software package, designed for the "convenient storage, retrieval, and updating of computer programs" and known as Accufile, is available from Cullinane Corp. here under an exclusive marketing and maintenance arrangement with the developer, Anagram Corp. of Virginia.

The package is currently operational at several sites including the Cosmic Software center at the Univerarity of Georgia and the Illinois Institute of Technology library of programs for mechanical structure analysis, the company said.

Using magnetic tapes, the package stores, maintains, modifies, deletes, and retrieves decks or individual records. It can, according to the company, handle flowcharts, programs, program specifications, etc. Due to a very compact method of storage, up to one-half million cards may be stored on a single tape.

For each tape produced, a current table of contents is printed. If individual programs are listed, an asterisk appears beside the card number for each card modified or added. All parts of any stored deck may be used to create new decks, which can then be stored. The entire program is renumbered if changes are made affecting the number of cards.

Built-In Flowcharting

The program also has a "Flochart" option which can generate flowcharts for any program, reading from left to right across the printed page. This feature, the company feels, allows complete documentation standards to be maintained for any program, no matter how large, and no matter how many of them there are.

The package sells for $25,000 and leases for $6000 per year. Only 13 basic commands are needed to use the entire facilities of the system.

Decision Table to Cobol Conversion Now a Service

GLENSIDE, Pa. – A new approach to programming, combining the advantages of time-sharing, the wide usefulness of Cobol, and the optimization of decision tables into a single package has been announced by Information Systems Leasing Corp. in conjunction with Computer Network Corp. here.

The system will be available through the Comnet network of time-sharing installations using Burroughs 5500 computers in several locations around the country, according to ISL. Comnet's system is available currently in the Washington, New York City, and Philadelphia areas.

Decision Table Compiler

ISL has contributed its Detoc (decision table-to-Cobol) converter which, according to the company, provides enormous savings in generating Cobol programs. Detoc produces Cobol programs directly from decision tables, providing documentation directly from the listing. Detoc has been available previously on a lease basis, but now operates on-line through the Comnet system. ISL feels that by the use of a decision table compiler, programming time, debugging time, and maintenance time can be reduced by 75%.

The user will communicate via remote terminal with the B5500, which will provide "virtual" machines with very rapid turnaround, permitting the processing of jobs in a "job stream."

The Comnet system provides both conversational-mode processing and deferred-priority processing, as well as on-line programming and debugging.

Comnet has its headquarters in New York City.

Business and Financial Applications Added to Service Bureau's Library

TARZANA, Calif. – A new library of business and financial programs for use with its time-sharing system has been announced by Call-A-Computer, according to Richard Henderson, company president.

Some of the typical applications included are trust portfolio analysis, investment yield, cash flow, budget analysis, growth analysis, stock acquisition prices, and budget control, he said. In all, several hundred programs are included in the stored-program library for immediate access by any user.

The programs have applicability over many broad areas including stock and bond analysis, banking, mortgage financing, financial analysis, and leasing operations, and are all available under the $100-per-month minimum charge for the service, Henderson said.

The company has its office at 18455 Burbank Blvd. here.

New DOS/360 Debugging Aids Are Offered

NEW YORK – Scads and Oops, two new debugging aids from Mandate Systems, Inc. of Madison Ave., are aimed at System 360 Disk Operating System users for console program debugging and patching.

Scads (Supervisory console assembler debugging system) enables DOS users to debug their programs directly from the system control console. By typing instructions at execution time, the programmer can take dumps, create break-points, and cause branches while the program continues to run.

Oops (On-line object patching system), which is an adjunct of Scads, simplifies machine language patching for object decks, eliminating reassembly time.

The combination package is currently available from the company at $1000 per installation plus $200 per additional computer owned up to a $2000 total.

H-200, 1410, 1401's FOR SALE

IPS has several IBM and Honeywell systems for sale and delivery in the near future. An H-200 8K system with 3 20KC tapes is available now. IBM 1410's include an 80K with 2302 disc and 7330's, a 40K with 10 729's, and a 40K with 1402, 1403, and 9 7330's. Among the 1401's (all with 1402, 1403) are 8K and 4K card systems, a 12K tape system, a 16K tape/disc system, and a 4K with 2 1311's. A 1440 8K 2-1311 and a 1440 16K 3-1311 system are also available. For prices, delivery, and details, please call or write.

IPS
INFORMATION PROCESSING SYSTEMS, INC.
200 WEST 57TH STREET NEW YORK N.Y. 10019 (212) 246-2267

1100 DISK-PACK
600 DISK-PACK
TVP 2 MAGNETIC TAPE
BASF Computron Inc
Crosby Drive, Bedford, Mass. 01730 Tel: (617) 271-4000

Consulting • Leasing • Software
EDP RESOURCES INC.
White Plains Plaza
One North Broadway
White Plains, N.Y. 10601
914 428-3004

$5 MILLION AVAILABLE NOW TO BUY 3RD GENERATION COMPUTERS.
Write, wire, call
THE COMPUTER EXCHANGE INC.
30 East 42nd Street, New York, N.Y. 10017
(212) 661-5870

SUBSCRIBE TO COMPUTERWORLD TODAY

SOFTWARE FOR SALE

INTERPRETING DISPLAY DUMP FOR IBM 360

Scans memory for instructions, CCWs, EBCDIC characters, fixed point numbers, floating point numbers, repeated bytes, and repeated words; and prints what it finds in an appropriate easily read format.

This is a clean, compact program. In most ambiguous situations it is smart enough to make the same interpretation as an experienced programmer would make.

Write for more information and a sample memory dump.
Price $160.

Superior Computer Systems
P.O. Box 2971
New York, N.Y. 10001

"FORFLO" IBM 1130/1800 DOCUMENTATION SYSTEM

System Consists of 2 Parts:

- Resequences FORTRAN statement numbers by fives, adjusting all branch and I/O statement numbers accordingly. Replaces constant logical unit numbers with variables for easy program conversion (user option). Punches new source deck (titled and numbered in columns 73-80.

Flowcharts any 1130/1800 FORTRAN program from source deck. Shows DO loop nesting. Draws complete flowlines. Separates input and output to allow flowcharting during off-shift time.

"FORFLO" runs on any 8K, 1130 w/disk and line printer or equivalent 1800. Runs in stacked job mode. No need to remove monitor control cards. System supported and maintained.

Send a duplicate FORTRAN deck for free demo and more information.

Price – $480

DNA SYSTEMS

DNA Systems
2415 W. Stewart Ave.
Flint, Michigan 48504
(313) 789-4402

Software & Systems Services
—Specializing in 1130/1800

PROMPT

Program Monitoring and Planning Techniques

A highly-responsive project control package which furnishes detailed reports to multiple levels of management to optimize decision-making and operations. PROMPT can reduce expensive cost, manpower and schedule overruns since it can accurately pinpoint these problems sufficiently in advance to enable rapid correction.

PROMPT provides:

- Detailed analyses of work performance
- Variance data from original estimates
- Summarized project analyses
- Detailing of staff utilization
- Analysis of overhead accounts
- Historical statistical tabulations of overall project and individual performance

Write or call: R. Dickinson

ARIES CORPORATION

Products Division
Westgate Research Park
McLean, Virginia 22101
Phone: (703) 893-4400

360 COBOL (Disk/Tape) PAYROLL/PERSONNEL SYSTEM

Series of 16-22 easy-to-maintain programs. Handles multi-company/state, hourly & salary payrolls. Unique union matrix (if required) to process unlimited union or special pay configurations. Complete file maintenance, documentation, JCL, etc. Several versions available. Contact us about references, custom modifications and detailed info. All versions $4,500.

COMM/SCI SYSTEMS CORP.
765 Market Street
San Francisco, California 94103
(415) 392-5379

COBOL USERS
DETOC

- INCREASES PRODUCTION
- REDUCES COSTS
- IMPROVES SYSTEM EFFECTIVENESS

Use DETOC PROCESSOR with decision tables to cut designing, programming, debugging, and maintenance time.

DETOC, ISL's new Decision Table to COBOL Processor, is available now through our complete leasing program that includes ongoing maintenance, training and retrofitting of improvements. For more data, call collect or write.

Howard Conrad

INFORMATION SYSTEMS LEASING CORP.

THE PLAZA
JENKINTOWN, PA
19046
PHONE: 215/885-2540

DISSATISFIED WITH YOUR IBM 1132 PRINTER SPEED?

- Use OPUS (Optimum Printer Utilization System) No. 2 and increase your CSP and IDEAL printing speed from 15% to 300%.
- OPUS is a software print routine conceived by the Development Division of VPE which enables the 1130 user to increase productivity by constantly printing at the maximum available speed and totally overlapping printing with all other computer functions.
- Load OPUS No. 2 once – All CSP and IDEAL programs using the 1132 printer will run faster – no program changes need to be made. You continue using standard CSP and IDEAL call statements.
- OPUS No. 2 will work with any IBM 1130 operating system, either Version I or Version 2.
- OPUS No. 1 provides the same support for Version 2 FORTRAN users.

Price:
OPUS No. 1 480 one time charge
OPUS No. 2 480 one time charge

VIATRON PROGRAMMING INC.,

Dep't. A B Street
Burlington, Mass. 01803

360/20 – UNIVAC 9200 & 9300 GENERAL ACCOUNTING LEDGER SYSTEM

designed for 8K card system with Reader Punch and printer; Produces Journal Voucher Balancing, Trial Balance, General Ledger, Budget vs. Actual Comparison Reports and Financial Statements. Fully operational for 1 year. Send for full details. Price: Upon request.

Contact: Ron Ascherman
P.O. Box 1958
Santa Ana, Calif. 92705

PROJECTOGRAPH

Software to display 3-D surfaces on your computer's plotter

- Completely operational *now*
- Operates on any computer with Fortran and any on- or off-line plotter
- Isometric/Oblique or Perspective packages – $2000
- Both packages – $3000

Call Collect: Hal Dickson
(213) 451-8778
Technology Service Corporation
225 Santa Monica Boulevard
Santa Monica, California 90401

ADVANCED MANAGEMENT SYSTEMS, INC.

Presents

AMS

RECORD SELECT PROGRAM (RSP)

Inexpensive fourth generation file management software for the IBM 360 and RCA Spectra series of computers.

RSP can be used for such tasks as:

- *Report generation*
- *File update*
- *Selection of and formatting data from multiple input files (one pass) for distribution to multiple output files*
- *Conversion of files from one format to another*

RSP's advantages are:

- *May be used by programmers and non-programmers alike*
- *Small core requirements*
- *Savings on machine run time costs (up to 25%)*
- *Reduces total programming costs (up to 70%)*
- *May be purchased in modules*
- *Comparatively inexpensive*

"I'll tell you where to call or write."

ADVANCED MANAGEMENT SYSTEMS, INC.
1833 E. 17TH STREET
SANTA ANA
CALIFORNIA 92701

Project Control for 1130 – Precedence C.P.M.

2 to 4 times the speed and capacity (7200 Activities – 80 LPM) of the Library Program. Includes Dollars/Activity, Cash Flow, Forecasting, Resource Leveling, Pay Estimate/Request, Summary Barchart, Change File, etc. $4500 includes installation assistance. Write C.M.S., Box 90, Haddonfield, N.J. 08033 for Full Details.

Mr. System

A complete ENGLISH LANGUAGE RETRIEVAL SYSTEM compares to packages selling for $10,000 and up. SAVES programmer time on one-time and repetitive reports. If you're rewriting or converting programs, Mr. System will replace report generators.

COBOL—DOS—32K minimum.

Selects, Sorts, Accumulates, and Prints report to your specifications.

Installed by mail only $2500 with complete User and Programmer Manuals.

Write:
Mr. System
Information Science Incorporated
New City, Rockland County, N.Y. 10956

REDUCE THE COST OF COBOL PROGRAMMING

The "SYSCOM COBOL DOCUMENTATION SYSTEM" exploits the documentation capabilities of COBOL.

- ATTACKS THE REAL PROBLEM—THE SOURCE LANGUAGE.

Generates sequentially related paragraph names.

Can change data element mnemonics to descriptive data element names or generate sequential, record related descriptive names.

Produces paragraph name cross reference.

Produces data element cross reference.

- LESS EXPENSIVE TO PURCHASE AND USE THAN FLOW CHARTING SYSTEMS.
- CHANGES TO THE PROGRAM ARE FASTER TO IMPLEMENT SINCE THE DOCUMENTATION AND PROGRAM LISTING ARE ONE IN THE SAME.

For more information please contact

SYSCOM

A Division of
Republic Corporation
2409 Sepulveda Boulevard
Manhattan Beach, California 90266
(213) 372-2181

Selective Information Retrieval System

A new computer program that allows you to —

- Select records from any sequential tape or sequential disk file
- Save specific information from the records selected
- Use any condition of selection
- Begin fields used in conditions of selection in any byte of a record
- Use up to fifty "AND"/"OR" conditions in selecting any class of record

Designed for 8/360, DOS, 32K and up. Send for full details.
PRICE: Upon Request
Contact: L.H. Baker
Pioneer Data Systems
1206 Mulberry Street
Des Moines, Iowa 50308

WHY GUESS? MEASURE!

Use SMS/360 products to determine:

- ★ Program Efficiency
- ★ Configuration Balance
- ★ I/O—Computs Ratios, etc.

Available for lease or purchase, OS or DOS.

For details, contact –

Boole & Babbage Inc. (415) 961-4440

1121 SAN ANTONIO ROAD
PALO ALTO, CALIF. 94303

Data & Information Products, Inc. representatives in:

New York	Atlanta
Chicago	Kansas City
Detroit	Philadelphia
Milwaukee	Cleveland
Dallas	

cobol MAIN-GEN

Generate Edit Verification and File Maintenance programs in Cobol. Complete operational systems in ONE HOUR.

Scorpio Data Systems Inc.
Tallman Center
Tallman, New York 10952
(914 357-5845)

AUTOFLOW

An automatic flowcharting system that produces 2 dimensional flowcharts directly from Cobol, Fortran, PL-1, and assembly language input.

Autoflow also produces listings of syntax errors, logic errors, data-name cross reference, label (or paragraph or statement number) cross reference index, and alphanumeric label index. Available for: IBM 360 systems, H-200 systems, Spectra 70 systems, IBM 1400 and 7090 systems. Write for literature and free demonstration.

PRICE: Upon request

Contact: Applied Data Research
Route 206 Center
Princeton, N.J. 08540

360 Payroll System — 100% COBOL —

Series of 23 programs which process hourly and salaried payrolls in a multi-company environment. Liberal deduction capabilities. Full labor distribution reporting. Complete file maintenance facilities. Excellent documentation. Runs on IBM 360 with 32K and two 2311 Disk Drives. This system is now being used and has proven highly successful

PRICE: $9,000.

Lavin-Townsend Service Corporation
One Decker Square
Bala Cynwyd, Pa. 19004

CAPITAL ASSETS ACCOUNTING

Fully documented 15 program COBOL system with installation support to $4000. Write:

NATIONAL SYSTEMS PLANNING, Inc.
3186 Maple Drive
Atlanta, Georgia 30305
(404)233-1601

QUERY

- Immediate Access to Information
- Searches & Retrieves Fixed & Variable Data
- File Format Independent
- No modification to your files

OPTIONS:

Reformat, Tally and Sum
30-Day Free Trial

AUTO-LEX

- Thesaurus File Generator
- Thesaurus File Maintenance
- Add New Terms
- Delete Old Terms
- Alter Term Relationships

OPTIONS:

Hierarchical, Permuted, Photo Composition
Insert Preparation
30-Day Free Trial

WHO SAYS PEOPLE DON'T READ CLASSIFIED ADS

NEW RATES
SOFTWARE FOR SALE

7 col. inch	$63.00
6 col. inch	$56.00
5 col. inch	$49.00
4 col. inch	$42.00
3 col. inch	$35.00
2 col. inch	$28.00
1 col. inch	$14.00

Minimum run at these rates 13 weeks (prepaid).

Rapid Access Management Information System

RAMIS retrieves information, manages files, generates reports *automatically* on your 360 OS.

Call: (301) 656-2870

MATHEMATICA

4905 Del Rey Avenue
Bethesda, Md. 20014

PATCH

ASSEMBLER LANGUAGE PROGRAMS

360 OOS Users — Investigate OOOPATCH — an aid in patching Assembler Language Programs

Replace Instructions
Add Instructions
No Re-Assembly
No Re-Link-Edit
Use Pneumonic Op Codes (MVC Not 02)
No Conversion to Base and Displacement Addressing
Save Computer Time
Save Programmer Time

Lease: $ 360 First Year
$ 35 Each Renewal Year

For Information Write to:

I X SOFTWARE, INC.
2305 Tampa Bay Blvd. – 202
Tampa, Fla. 33607

IBM CCAP
binary synchronous support

Multipoint Leased Line
360/360
360/2780
Headers and Text
Up to 4800 Baud
BSC Error Overlay
EBCDIC or USASCII Codes
Transparency
Integration Assistance

contact
Mr. Werner Sharkey
(302) 762-5605

International Telecontrol Corporation
4300 Pine St.
Wilmington, Del. 19802

FIRST (Financial Information Reporting SysTem) COBOL

G/L & statement preparation system – does not dictate chart of accounts, account numbers or statement formatting. It is a parameterized system producing journals, trial balances, G/L posting, balance sheet, P&L, budget & prior year comparison.

Running on H200, 360/30, B2500.

$20,000 purchase; franchise $5,500, plus 6% of gross sales.

Contact: Woody Stem
Computer Resources Corporation
P.O. Box 431, Wilton, Conn. 06897
Phone: (203) 762-8357

Product Software . . .
by Management Science Systems

EASYTRIEVE 300

An inexpensive, easy-to-use management reporting system. Available for the . . .

IBM SYSTEM 360
RCA SPECTRA 70
IBM 1401

EASYTRIEVE:

- Searches and retrieves selected data from any fixed-length records on a magnetic tape file, blocked or unblocked.
- Responds to a simple, English-like file query language encompassing logical and relational parameters for data selection, and complete capabilities for manipulating selected data arithmetically.
- Generates output in standard or user-defined formats, with capabilities for three accounting control levels and seven total fields.
- Processes up to 25 separate queries in a single pass of the data tape, with up to 100 search conditions per query.

Lease price includes installation, training seminar, and complete user documentation.

For further information about EASYTRIEVE or other Product Software available soon, contact:

MR. SHELDON T. KATZ
Vice-President,
Information Sciences
MANAGEMENT SCIENCE SYSTEMS
1530 East Jefferson St.
Rockville, Md. 20852
(301) 427-1840

ACTION
n/c soft ware

4 to 6 Times the Speed of AD-APT/ AUTOSPOT

- IBM 360–32K
- 2 to 5 Axis P-to-P & Cont.
- OS or DOS
- Can operate in a multi-program environment.
- Over 200 companies now using ACTION.

DCICS
numerical control computer services
Div. Eugene Dietzgen Co.
28940 Eagle Blvd. • Cleveland, Ohio 44122
Telephone: 216/831-5007

SCORE
Information Retrieval & Reporting System

Last year 25 major users ordered it, are using it, are happy with it.

Seminars:

April 11, Washington, D.C.

For details contact
Robert P. Wolk at
215 WA 5-8424

Atlantic Software
Software Marketing Specialists
Computer Center of Philadelphia
Philadelphia, Pa. 19106

SPEED PROGRAM PRODUCTION *WITH*
BOCOL
The New, Simplified Computer Language that Solves Programming Problems

Program production bogged down? BOCOL (Basic Operating Consumer Oriented Language) speeds production by solving many of your programming problems.
BOCOL is simple and streamlined – to get you from program creation to program production faster.
NOVICE programmers can write BOCOL statements immediately.
BOCOL's clear and precise statements relieve experienced programmers of routine jobs.
BOCOL is a true one-pass compile and process language. It requires far less keypunching time, no executable computer time for assembling and compiling.
BOCOL saves time, saves money, simplifies operations. We'll show you how it takes the pressure out of being busy. Fill in and mail the coupon below now.

Fimaco, inc.

222 W. Washington Square, Philadelphia, Pa. 19106 Phone: 215/923-1900
2 Penn Plaza, Suite 1000, New York, N.Y. 10001 Phone: 212/695-3074

FIMACO, INC., 222 W. Wash. Sq., Phila., Pa. 19106
Please send me a BOCOL Brochure.
I am also ____ computers.
NAME
TITLE
COMPANY
ADDRESS
CITY

Are your information management programs tying your computer up and your programmers down? Untie both with . . .

GIM*

GENERALIZED INFORMATION MANAGEMENT SYSTEM

GIM enables you to:

Significantly cut programming time to get an information management system on the air.

Deal with one integrated program rather than a series of many interdependent programs.

Establish data bases consisting of highly interrelated but different files.

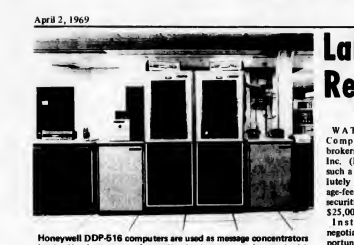
Query your data base in English.

GIM is machine independent. It can be used on any computer that meets small core and random access storage requirements. Your data management personnel can learn to use GIM effectively themselves within two weeks, without knowledge of programming or computers.

GIM is available now! Inquire today about our leasing plans. Write Roger Wise, TRW Systems Group, One Space Park, Redondo Beach, Calif. 90278.

TRW

TRW INC. Copyright TRW INC.



Honeywell DDP-516 computers are used as message concentrators in the Keydata system for on-line business processing used with Instinet.

Large Lot Security Sales System Ready for Institutional Buyers

By A.B. Williams
CW Staff Writer

WATERTOWN, Mass. – Computers acting as stock-brokers? Institutional investors, Inc. (Instinet) will offer just such a service, to facilitate absolutely anonymous, no-broker-age-fee trades of large blocks of securities of at least 500-share, $25,000 size.

Instinet offers all the negotiating, "game-playing" opportunities available to an ex-change floor trader, with the additional advantage of identifi-cation by number only, a dif-ferent number for each line item offered or bid.

The heart of the system is a Univac 494, at Keydata, Inc., Watertown, Mass., a time-sharing pioneer. The 494 cycles a 30-bit word in 0.75 microseconds; overlapped accesses give an ef-fective time of 0.375 microsecs. By year-end, two 494s will be duplexed.

The institutional users will have specially designed Teletype terminals, with a 75 baud rate. Should there be enough users in any one location to withdraw any or all of his items; he can accept some-one else's; he can inquire into the book on any security in-cluded. Each stock is identified by a number; each separate offer or bid has its unique identifi-cation. The only floor trading device that can't be used is the "Sorry, I just went to lunch" dodge employed by traders when it appears that their cus-tomers may get a better price by waiting. Once an offer or bid is in the system, it can be unilaterally accepted until either completed or withdrawn. The system features a response time of less than two seconds.

The user is unsatisfied with the status of the book he's looking at, he can broadcast an offer or bid to all other members of the system, any one of which either accept or open negotia-tions. A broadcast has the ad-ditional feature of being assigned a price limit. It can be made to expire automatically in a period of 15 minutes to one week.

A broadcast is immediately typed on all user terminals, as well as being added to the book. Any bid or offer may incor-porate a range of numbers of shares, may hide a further num-ber, or may be "all or none."

The system offers complete anonymity. Buyer, seller, and the security are identified only by numbers. A trade is handled by the users' custodian banks, funneling cash and certificates through the Bank of New York. The trade is fully described on hard copy produced at the ter-minals. All details must check. This should clear up that end of the back-office mess which has created so much havoc in brokerage offices.

Tight Security

Security is tight enough that two mutual funds under the same management need never know that one bought what the other sold – an entirely possible circumstance, if day-to-day man-agement is split, as is often the case.

Instinet is aimed directly at institutions, such as banks, insur-ance companies, mutual funds, and pension funds – the people who have come to exert an increasing, very large influence on national securities exchanges, both in daily trading and as a result of the massive portfolios they carry. They will benefit from the close price shopping offered by the system, from the anonymity and security, from the fast response, and particular-ly from the lack of brokerage fees.

The minimum base price for the service is $1740 per month, plus communication charges and processing unit charges.

Competitive Services

Instinet has competition. Autex Service Corp. of Welles-ley, Mass., expects to go into operation this month with a system based around a Scientific Data Systems Sigma 5. This system is essentially a brokerage service: only the brokers, who pay $5000 per month, can enter information into the network. The institutional customers, whose monthly fee is $200 will often be picked up by brokers, start non-network negotistion from the broker's offer. Needless to say, the brokers will get their piece of the action.

The New York Stock Exchange has Arthur D. Little, Inc. work-ing on the development of a plan quite similar to the Autex sys-tem – a broker-oriented file, under which transactions will clear through normal channels. Only brokers will be able to make actual transactions. There will, however, be a data base of all outstanding offers, which can be accepted on the spot or serve as the basis for negotiations. There will presumably be a sub-stantial minimum-size trade – $1 million is seen as a good possibility.

Thus, what makes Instinet unique also makes it more at-tractive to institutional users.

Optical Scanning Expects To Post Loss in Quarter

NEWTOWN, Pa. – Lack of salesmen and a cancellation of a large order were cited as reasons why Optical Scanning Corp. ex-pects to report a loss in the quarter ending March 31.

John W. Busby, president, said in a letter to shareholders that there were three factors behind the expected loss.

The most important problem was "the company's inability to maintain an adequate level of trained salesmen at a time when plant expansion had added sub-stantially to capacity to pro-duce."

Busby did say that the com-pany's marketing department has been "reorganized" and that Optical Scanning plans to build up its order backlog to five or six months to minimize the ef-fects of future seasonal swings in orders.

Also cited was the cancellation by a major customer of an order for 21 optical scanning systems and the seasonally low incoming order rate of the third quarter.

Busby told *Computerworld* that although State Farm Insur-ance had cancelled its order for 21 Digitek 70s, two Opscan 70Cs have been installed at State Farm as test units with a "good possibility" that State Farm will order the larger units instead.

The Opscan 70C consists of a Digitek 70 linked to a tape drive, Data-Phone, and a high-speed printer.

In comparison, the company last year reported a profit of $151,548, or 29 cents a share, for the same period.

For all of fiscal 1968, Optical Scanning earned $583,582, or $1.12 a share, on revenue of $5.6 million.

Optical Scanning manufactures equipment that reads both hand-printed and machine-printed characters, and transfers the data to 7 or 9-channel mag-netic tape.

DPF&G Agrees to Finance Computer Construction

By a CW Staff Writer

NEW YORK – Data Processing Financial & General Corp. has agreed to finance up to a $2 million share of the construction of a newly designed time-sharing super-computer system.

The agreement also provides for possible half ownership by DPF&G of a newly formed man-ufacturing company that will specialize in time-shared com-puter systems.

Under the agreement, an-nounced March 19, DPF&G has purchased $100,000 debenture from Berkeley Computer Corp., Berkeley, Calif., which is con-vertible into 50% of Berkeley's outstanding common stock.

DPF&G, however, has also agreed to advance additional funds, up to $2 million, from time to time as certain levels of progress are achieved."

According to DPF&G, these additional funds are earmarked for the purchase of components.

Berkeley Computer was re-cently organized to manufacture complete, large-scale time-sharing computer systems. Dr. Melvin W. Pirtle is president.

Dr. Pirtle, according to DPF&G, headed the design team at the University of California at Berkeley that modified the SDS 930 computer for time sharing.

The resulting design adapted and modified by SDS became the SDS 940, a time-sharing computer able to sustain about 35 simultaneous users.

The research underlying the design of the new Berkeley firm's time-sharing computer system was completed at the University of California at Berkeley during the past five years under the auspices of the Advanced Research Project Agency (ARPA) of the Office of the Secretary of Defense, ac-cording to DPF&G.

Computer Short Interest Climbs on Amex and NYSE

By a CW Staff Writer

NEW YORK – Short interest on the New York Stock Ex-change rose by 157,758 shares to 18,424,259 in the month ended March 14, as selected computer companies' short in-terest increased by 12,529 shares to 1,253,424 for the same period.

Short interest on the American Stock Exchange dropped during the same period by 126,795 shares to 9,274,335; but selected computer stocks rose 6785 shares to 704,992 from 698,207 on Feb. 14.

A short sale is the sale of borrowed stock. The seller ge-nerally anticipates a price drop that will enable him to repur-chase an equal number of shares at a lower price.

The short interest is the num-ber of shares that hasn't been repurchased for return to lenders and represents, in effect, a definite backlog of potential buy orders.

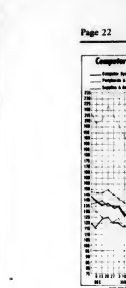
The following tables show the New York and American Ex-change stocks in which a short position of at least 20,000 shares existed on March 14, or in which there was a short position change of at least 10,000 shares since Feb. 14.

NEW YORK EXCHANGE

	3-14-69	2-14-69
Addressograph Multigraph	30,408	9,339
Bunker-Ramo	38,886	47,056
Burroughs Corp.	64,998	59,887
Collins Radio	54,963	35,134
Computer Sciences	46,471	37,128
Control Data	220,758	225,481
General Electric	21,948	43,053
Honeywell	65,830	39,098
Intnl Business Mach	81,177	65,930
Memorex	68,839	39,401
Nat. Cash Register	45,841	34,391
Radio Corp of America	23,780	78,792
Sanders Assoc.	25,577	21,156
Sangamo Elec	27,025	27,227
Scientific Data Systems	83,923	107,320
Telecomputing	79,619	73,234
Sperry Rand	112,829	126,374
Xerox	137,824	126,340

AMERICAN EXCHANGE

	3-14-69	2-14-69
Astrodata	89,994	87,068
Calif Computer Prod	37,525	30,345
ComputOyne Corp.	31,882	25,218
Computer Lease Inc.	43,807	55,611
Data-Control Systems	11,056	26,509
Data Process Fin Gen	110,822	71,161
Data Prod Corp	78,188	84,511
DEC	20,837	19,375
Granite Equip	28,064	21,981
Lasco Data Proc Equ	83,215	114,024
Lasco Data wts 78	43,296	25,440
Levin-Townsend	74,365	59,287
Mohawk Data	52,641	37,677



All Sectors Rise Except Software

By V.J. Farmer
CW Staff Writer

Computer stocks reflected the general stock market optimism during the week ended March 21 as four of *Computerworld*'s five sector indexes rose.

Led by NCR and Burroughs, all the stocks in the Computer Systems sector went up, pushing the index higher by 6.2 points (4.8%) to 133.9.

The Leasing Companies sector broke its eight-week decline, posting a gain of 2 (2.3%) to 87.5 as Leasco jumped 5-1/8 on its newly split shares.

Supplies & Accessories climbed 2.4 (2.1%) to 112.3, and Peripherals & Subsystems squeaked up 1 point (0.8%) to 120.4.

Software & EDP Services was the only sector to decline, down 2.7 (1.7%) to 160.

The composite index was 122.85.

The Dow Jones industrial average, during the same week, climbed 15.72 to 920; the NYSE composite index inched up 0.94 to 55.87; Standard and Poor's industrial average rose 1.96 to 108.65; the Amex price index increased 52 cents to $30 even; and the NQB over-the-counter industrial average rose 1.68 to 392.20.

Leasco Revers?

Leasco Data Processing climbed rapidly last week after a heavy drubbing that had lasted more than two months. The jump of 5-1/8 last week was equivalent to a 13-point jump on the firm's stock before its recent 5-for-2 split.

But Leasco has indeed turned on the steam.

On Monday, March 17, Leasco came out with a full-page advertisement in the *Wall Street Journal*, touting Leasco's new Response time-sharing services in the conversational mode using portable terminals.

The main selling point was price, which was advertised at $5.75 an hour, or $4.75 an hour on a volume basis. Charges are levied only when the terminals are in use.

COMPUTER STOCKS TRADING SUMMARY

WEEK ENDED MARCH 21, 1969

PERIPHERALS & SUBSYSTEMS

EXCH	S-I-L+R	BASE PRICE	1968 RANGE	CLOSING PRICE	WEEK CHANGE	WEEK NET %	% CHANGE FROM BASE
N	SP	3/4	91- 53	48 3/4	+ 5 3/8	4.11	10.48
O	DI	53-	66 44 1/2	ALPHANUMERIC	+ 4 1/2	11.25	111.48
N	PD	40-	74 51 1/2	BRYAN COMP	+ 1 3/4	4.40	29.51
O	IT	1/4	89- 14	15 1/2	POLYMARK	+ 1/4	---	---	+10.16
N	IP	13	1/8	71- 11	13 3/4	SUNNEN-PRO	+ 1/4	1.87	.91
P	TE	3/4	50-	24	33	HOBLOP	+ 1 1/4	3.93	2.70
O	PA	14	1/2	31-	24	1/4	CONNECTRONICS	+ 1/4	---	---	+10.34
O	IP	10	15-	13	13	COMPUTER EQUIPMENT	- 5/8	---	---	-6.53
P	IS	1/4	28-	17	19	1/4	DATA PRODUCTS CORP	+ 1	5.66	94.25
O	IP	1/4	37-	14	19	1/2	MOSTRONICS	+ 1/4	---	---	+1.30
O	TE	1/2	43-	20	28	1/2	SELECTRON PERIPHER	+ 0	---	---	0.00
O	IP	10	12-	11	12	3/4	KRAMER-TEK	+ 1 3/4	10.58	20.35
O	PA	3/4	50-	28	31	1/4	PASSINGTON, PEO	+ 1 1/4	4.17	51.62
O	IP	1/2	54-	23-	24	1/4	INFORMATION DES	- 1/4	---	---	-1.03
P	IP	1/4	79-	57-	58	1/4	MILGO ELECTRONICS	+ 1 1/4	2.20	40.00
A	ST	1/2	202-	96	96	1/2	MICHIGAN DATA SCI	+ 1 1/2	1.58	24.24
O	TA	1/2	93-	38	39	1/2	HOSPITAL SCANNING	+ 1/2	---	---	+1.28
O	IP	1/2	48-	22	22	1/2	PHOTON INC.	+ 1/2	2.24	2.24	2.28
A	PS	5/8	24-	10	10	5/8	OPOTRON INTERNMENT	+ 1 1/4	1.01	14.51
O	AP	1/4	64-	9	44	1/4	SPECULATION SCIEN	+ 1	1.14	47.50
A	IP	1/4	45-	18	20	1/4	RESON ELECTRONICS	+ 1 1/4	3.49	24.14
N	AM	1/2	57-	40	41	1/2	TRANSIT-ANNOUNCE	+ 1/4	1.20	1.21
O	AT	1/2	24-	14	14	1/2	COMPUTER SCIENCE	+ 1/2	---	---	+1.27
O	IP	1/2	24-	11	11	1/2	COMPUTING & SOFT	+ 1 1/2	1.87	15.81
O	IP	1/2	24-	5	19	1/2	DATAPATION SERVICE	+ 1	---	---	+9.20
O	IP	1/4	20-	10	14	1/4	DATATAB	+ 3/4	---	---	+5.36
O	IP	1/2	18-	9	11	1/2	MICRITER	+ 3/4	---	---	+8.50
A	IP	3/8	51-	25	30	3/8	FLYHT COMP PROD	+ 3 1/8	3.49	11.64
O	IP	1/2	34-	14	21	1/2	INFORMATEC	+ 1/4	1.20	29.80
O	IP	1/4	24-	8	14	1/2	MATRIX CORP.	+ 3 1/2	33.33	31.76
O	IP	5	3/4	24-	4	1/2	WHAT COMP ANALYSTS	+ 1/2	4.17	150.00
A	TI	4	3/4	63-	23	3/4	PLANNING RESEARCH	+ 3 1/8	10.43	10.80
A	IP	13	4	15-	8	1/4	PROGRAMMING & SYS	+ 1/4	3.13	-37.74
O	IP	5	1/4	4	2	1/8	SOFTWARE SYSTEMS	+ 1/8	-2.08	-31.94
O	IP	29	4	44-	8	3/4	STRATEGIC SYS	+ 5	87.91	-11.94
O	IP	2	3/8	20-	10	1/4	SEC COMP CENT INC	+ 1/2	5.26	-31.71
O	IP	12	4	1/2	7	1/2	UNITED DATA CENTER	---	---	---	+75.00
O	IP	63	1/4	19-	4	1/8	MINICOMPUTER CORP	+ N	---	3.82	68.75
O	IP	28	A	39-	24	3/8	360 SYSTEMS	+ 2 3/4	6.13	63.35
O	IP	38	A	54-	13	1/2	DATA TIME-SHARING	---	---	---	+55.00

COMPUTER SYSTEMS

EXCH	S-I-L+R	BASE PRICE	1968 RANGE	CLOSING PRICE	WEEK CHANGE	WEEK NET %	% CHANGE FROM BASE
N	IB	3/4	355-	193	243	7/8	+BURROUGHS CORP	+ 18 1/8	5.03	49.07
N	CT	3/4	181-	68	58	3/4	COLLINS RADIO	+ 2 1/4	4.40	-25.65
N	IR	1/2	163	1/2	135	5/8	+CONTROL DATA CORP	+ 3 1/8	2.36	33.40
A	IB	M	134-	95	115	1/2	+GENERAL EQUIPMENT	+ 5 7/8	5.87	54.51
B	IB	1/8	85-	18	28		ELECTRONIC ASSOC.	+ 1/4	1.27	4.59
N	BT	1/4	180-	98	69	3/8	GENERAL ELECTRIC	+ 3 1/8	2.80	9.43
N	AM		91-	59	82	3/4	HEWLETT-PACKARD CO	+ 4 7/8	6.28	17.88
N	HI	1/4	194-	98	174	1/4	+HONEYWELL INC	+ 8 1/8	4.10	34.57
N	IBM	1/2	375	283	305	1/2	+IBM	+ 8 1/4	1.16	6.64
N	IR	3/4	154-	99	107	1/2	+NCR	+ 11 3/4	11.28	17.17
N	RA	7/8	55-	41	42	1/2	RCA	- 3/4	1.80	-0.73
N	SP	1/4	187-	53	58	1/4	SPERRY RAND CO	+ 1/4	.78	10.98
O	IP	1/8	37-	21	23	1/4	+SCI. CONTROL CORP	+ 1/4	.76	45.78
N	SD	1/4	139-	79	112	1/2	+SCIENTIFIC DATA	+ 3	2.75	44.44
N	HP		61-	41	58	1/2	+SPERRY RAND	+ 3 7/8	4.31	17.05
A	IP	1/2	39-	24	31	1/8	+SYSTEMS ENG. LABS	+ 3 1/8	11.14	38.33

SUPPLIES & ACCESSORIES

EXCH	S-I-L+R	BASE PRICE	1968 RANGE	CLOSING PRICE	WEEK CHANGE	WEEK NET %	% CHANGE FROM BASE
O	AM	3/8	47-	18	20	MOORE STEEPLE	-	-0.54	-21.43
N	DR	1/2	63-	12	18	1/2	ADAMS-MILLIS CORP	+ 3/4	5.43	-8.76
O	IP	1/2	29-	17	24	1/2	+PALTRONIC INS PROD	+ 1	4.34	39.89
P	IP		44-	31	32	1/2	+BRADY WRIGHT	+ 1/2	3.23	+16.43
O	IP		44-	31	37		DATA DEVELOPMENTS	+ 1/2	1.37	19.40
N	DT	1/4	42-	31	38	1/4	+ESSEX INTL CORP	+ 1/2	1.31	49.08
N	SS		71-	41	74	1/4	+SPERRY	+ 1 1/4	2.34	51.47
N	AM	1/2	11-	4	11	1/2	+AM COMPANY	+ 3/4	---	---	+4.88
O	DT	1/4	11-	4	14	1/4	+DATA DEVELOPMENTS	+ 3/4	2.66	16.67
N	ST	1/4	44-	16	33	1/4	+BRUNSWICK	+ 7/8	2.07	-14.84
O	TI	1/4	44-	19	44		+TAYLOR INSTRUMENTS	+ 1 1/8	2.66	48.48
O	IP	1/2	15-	8	14	1/2	+STANDARD REGISTER	+ 1/4	1.82	-10.34
N	TO	3/4	44-	28	34	1/4	+TRW	---	---	---	-10.53
A	IP	1/4	14-	6	13	1/4	+DATA PRODUCTS	+ 1/4	1.89	10.40
O	IP	3/4	11-	4	11	1/4	+ANALOGIC DATA PROD	+ 1/4	4.83	39.58

SOFTWARE & EDP SERVICES

EXCH	S-I-L+R	BASE PRICE	1968 RANGE	CLOSING PRICE	WEEK CHANGE	WEEK NET	% CHANGE FROM BASE
O	T	3/4	94-	3	19	1/2	ADVANCED COMP TECH	- 3/4	-3.64	44.44
O	IT	3/4	14-	6	9	1/2	+APPLIED DATA RES	+ 2	-4.44	80.35
O	IP	1/2	14-	7	9	1/2	+ASSET	+ 2 1/2	+20.83	+31.71
A	AT		77-	47	49		AUTOMATIC DATA PRO	---	---	---	40.00
O	IP	4		10-	10	1/2	AVCO SCIENCE	- 1/4	-2.43	10.42
N	AM	1/2	17-	6	11	1/4	+BRANDON APPL SYS	+ 1/4	+2.08	130.43
B	IP	3/4	67-	14	17	7/8	COMPUTER APPL	+ 5/8	3.67	+21.68
O	IP	5	7/8	14-	5	1/2	COMPUTER ENVISION	+ 1/2	4.80	140.00
O	IP	1/2	24-	4	14	3/4	COMPUTER NETWORK	- 2	-5.56	17.35
N	AM		44-	12	26	1/4	+COMPUTER SCIENCES	+ 5 3/4	28.05	68.89
O	IP	1/2	19-	11	13	3/4	+COMPUTER USAGE	+ 1 1/2	-4.17	-13.24
A	IP	1/2	51-	21	31	3/4	+COMPUTING & SOFT	+ 1 1/2	1.87	105.81
O	IP	1/2	24-	5	19	1/2	DATAPATION SERVICE	+ 1	-5.13	40.00
O	IP	1/4	20-	10	14	1/4	DATATAB	+ 3/4	-5.66	-15.76
O	IP	1/2	18-	9	11		MICRITER	+ 3/4	-6.38	-10.00
A	IP	3/8	51-	25	30	3/8	FLYHT COMP PROD	+ 3 1/8	3.49	-19.64
O	IP	1/2	34-	14	21		+INFORMATEC	+ 1/4	1.20	29.80
O	IP	1/4	24-	8	14	1/2	MATRIX CORP.	+ 3 1/2	33.33	31.76
O	IP	5	3/4	24-	4	1/2	WHAT COMP ANALYSTS	+ 1/2	4.17	150.00
A	TI		63-	23	63	3/4	PLANNING RESEARCH	+ 3 1/8	10.43	10.80
A	IP	13	4	15-	8	1/4	PROGRAMMING & SYS	+ 1/4	3.13	-37.74
O	IP	5		1/4	4	2	1/8	SOFTWARE SYSTEMS	+ 1/8	-2.08	-31.94
O	IP	29	4	44-	8	3/4	STRATEGIC SYS	+ 5	87.91	-11.94
O	IP	2	3/8	20-	10	1/4	SEC COMP CENT INC	+ 1/2	5.26	-31.71
O	A	12	4	1/2	7	1/2	UNITED DATA CENTER	---	---	---	+75.00
O	IP	63	1/4	19-	4	1/8	MINICOMPUTER CORP	+ N	---	3.82	68.75
O	IP	28	A	39-	24	3/8	360 SYSTEMS	+ 2 3/4	6.13	63.35
O	A	38	A	54-	13	1/2	DATA TIME-SHARING	---	---	---	+55.00

LEASING COMPANIES

EXCH	S-I-L+R	BASE PRICE	1968 RANGE	CLOSING PRICE	WEEK CHANGE	WEEK NET %	% CHANGE FROM BASE
O	IB	43-	30	39	NOOTHE COMPUTER	- 1/2	-1.27	111.11
O	A	24-	4	12	COMPUTER EXCHANGE	- 1	-7.69	100.15
P	IP	1/2	34-	20	24	7/8	+COMPUTER LEASING	+ 3/4	+3.24	+41.02
O	AS	1/2	35-	9	12		CONT COMPUTER	+ 1	+9.76	+42.86
O	IP	1/4	18-	A	11	1/2	+COMPUTRONICS	+ 3/4	6.54	7.32
A	IBA	5/8	24-	4	17	1/2	+DATA PROCESS FIN	+ 1 1/2	5.60	+55.56
O	DS		14-	10	12		DATRONIC RENTAL	- 1/4	-4.00	-42.00
O	IP		55-	44	47		+LEASING COMPUTER	+ 1	2.17	134.00
O	IS	1/4	12-	11	11	1/4	+DPAS INC	- 3/4	-5.70	-11.04
P	IP	1/2	44-	32	35	5/8	+FINANCE EQUIPMENT	+ 3 1/8	7.14	26.87
A	IP	3/4	44-	21	37	1/4	+LEASING COMPUTER	+ 3 3/4	11.28	+72.41
A	AR		17-	14	43		+LASCO DATA PROC	+ 5 1/8	13.53	-10.24
O	S		14-	4	7	3/4	SECTRO COMP LEAS	- 1/4	-3.33	65.00
A	IP	3/4	83-	19	40	5/8	+LEVIN-TOWNSEND SYS	- 1/4	-.61	39.11
O	IP	1/4	10-	5	6		+LMC DATA, INC	- 5/8	-9.43	+47.06
O	IP	1/2	12-	8	10		+MANAGEMENT ASSIST	+ 1 1/4	14.30	15.66
P	AT	1/2	141-	75	83		NATIONAL COMPUTER	- 3/4	-.89	-28.12
O	A	1/2	14-	8	9	3/4	NEC LEASING	- 1/4	-2.14	-14.60
A	IP		44-	32	37	3/4	+RANKOLPH COMPUTER	+ 1 3/4	+5.01	-13.80
O	S		32-	5	24		SYSTEM CAPITAL	---	---	---	100.00
A	IP	1/2	28-	9	24	1/2	+US LEASING	+ 1 3/4	+9.31	175.09

a-Since 10/18/68 *Companies included in Computerworld's stock trading index for each sector.

About the same time, Leasco announced a reorganization of its Leasco Systems & Research Corp. The reorganization was designed to strengthen the organization of its data services and time-sharing operations.

Saul Steinberg, chairman and president, added further fuel to the fire with a taped interview for security analysts on Tuesday in which he predicted Leasco's computer services unit a consolidated annual growth of 35% over the next five years.

Steinberg reiterated that the two major areas of expected growth are time-shared computer services and the marketing of specially designed peripheral equipment.

Leasco aims, according to Steinberg, to capture 10% of the time-sharing market by 1972, with profits starting to accrue by Sept. 30, 1970.

Steinberg also plucked out of his hat the interesting tidbit that Texas Instruments Inc. is designing special computer peripherals for Leasco to market by this July.

Reliance Insurance Co. will also shape up this year, as Steinberg indicated that incentives would be initiated for portfolio managers to increase the return on Reliance's investment portfolio from 3.7% to "at least 5% and hopefully closer to 10%."

The remarks were sponsore ' and privately distributed by *The Institutional Investor*, a New York financial publication.

Multi-Computer Data Center Opens in Midwest

KANSAS CITY, Mo. – A new multi-computer center, designed to provide customers throughout the continental United States with powerful conversational time-sharing capability, was opened recently by United Computing Systems, Inc.

The new Datacenter, located in Kansas City, will serve customers throughout the nation on a toll-free basis.

Providing time-sharing services at the time of the opening were General Electric 420 and GE 265 dual-computer systems.

In addition, United Computing has installed a Control Data 6400 computer system. Time-sharing software for the 6400 system, one of the largest to be programmed for full-scale time-sharing, is being developed in a joint effort by United Computing and Control Data and is expected to be in service later this year.

Additional CDC 6400 and/or 6600 systems are on order by United Computing to increase the Datacenter capability as needed.

Toll-free access to the computer will be available from every part of the nation.

Wyle Forms New Groups

EL SEGUNDO, Calif. – Wyle Laboratories has formed a new division, Wyle Computer Products, to handle the company's circuit modules and remote computer terminals, as well as computer components and subsystems. The new division was formerly part of the Wyle Systems Division which continues its activities in the design, assembly, and installation of computer-based control and instrumentation systems.

MSA Starts D.C. Office

ATLANTA, Ga. – Management Science America, Inc., a management consulting and computer software firm, has announced the opening of new office facilities at 1911 N. Ft. Myer Dr., Arlington, Va. The offices will be occupied by MSA's consulting division and the company's subsidiaries.

Programming Sciences Opens in Chicago

NEW YORK – Programming Sciences Corp. has opened a branch office at 1301 W. 22nd St., Oak Brook, Ill., for the purpose of marketing the programs and services of the company's Financial Services Division. L.G. Rebich has been transferred to the new office from PSC's Los Angeles office.

Brandon Applied Systems Moves to New Quarters

NEW YORK – Brandon Applied Systems, Inc., a technical services consulting firm, has moved to new quarters at 1700 Broadway, New York City.

Interactive Sciences Opens Pittsburgh Office

BRAINTREE, Mass. – Interactive Sciences Corp., a computer services company, has opened a branch office at 1725 Washington Rd., Pittsburgh, Pa. Alfred H. Jorgensen has been appointed regional manager.

EXPANSIONS

Computer Planning Corp. Has Chicago Branch

LOS ANGELES – Computer Planning Corp. has opened a branch office at 20 Wacker Drive and operates it under the name of On-Line Sciences, Inc., recently acquired by Computer Planning Corp. James Ray has been appointed to manage the new office.

Information Storage Moves to New Building

PALO ALTO, Calif. – Information Storage Systems, Inc. has announced its move to a new building in Vallco Industrial Park, Cupertino, Calif.

The new facility was designed for the development and manufacture of disk drive systems for mass data storage. Initially, the company will concentrate on disk storage drives that utilize removable disk packs.

Long-term plans call for a complete line of direct access memory systems to service small to large-scale computer systems.

Computer Time-Sharing Firm Opens Three New Offices

MINNEAPOLIS – Computer Time Sharing, Inc. has changed its name to International Time-sharing Corp., according to an announcement by Albert M. Sheldon, Jr., the company president, and also has announced that three new sales offices have been opened for dial-up service for computer time-sharing users in San Francisco, San Diego, and New York.

General Computer Service Moves Corporate Offices

HUNTSVILLE, Ala. – General Computer Services has announced that it has moved its corporate offices to larger quarters in the Huntsville Industrial Center. An IBM 360/50 has been installed for central and remote batch modes of operation.

Integon Forms Subsidiary

WINSTON-SALEM, N.C. – Integon Corp. has announced the formation of a new subsidiary to develop and market its computer services, Incorporated Jan. 16, it will market the company's on-line service for savings and loan associations.

New Software Development
for all users of
IBM 360 RPG
DOCUMATIC®

Automatic program documentation system that produces English language descriptions

Lets you document 150 programs (perhaps this exceeds your entire program library) in the time it takes to manually document *one* program; thus expanding the effectiveness of your data processing operation tremendously. Cost? Only a small fraction of the amount of money it saves. Sound unbelievable? We know it does. That's why we offer . . .

Free proof! Mail us a copy of an RPG source program deck and we will return the documentation to you without cost or obligation. Fair enough?

Data Usage CORP.
Computer Software Architects
2460 LEMOINE AVE. • FORT LEE, NEW JERSEY 07024
(201) 461-6242

Why you need
DOCUMATIC®

Greater Programmer Productivity DOCUMATIC users are producing in 1-4 minutes what your programmer still types take one day to do. That's one more programmer-day available for RPG sophistication. That's $50 ($150; $90) worth of programmer time available for more productive use.

Maintenance Documentation Costs When a program is modified, the documentation must be updated. DOCUMATIC users do the job in minutes . . . each time the program is changed.

Debugging Aid DOCUMATIC assists in desk-checking programs for: (1) improper printer overflow, other forms control and stacker selection specifications; (2) improper level break and matching records definitions; (3) incorrect indicator usage; (4) overlapping data fields; (5) and others.

Program Optimization DOCUMATIC produces output in a manner similar to the RPG compiler, pointing the way to program modifications which will provide faster thruput and smaller program size.

Run Book Machine operators are using DOCUMATIC output as the basis of their run book; a run book that gets away from scraps of paper and an operator's memory.

Conversion Aid DOCUMATIC gives you an English language description of the program with the RPG terminology removed. A programmer with no knowledge of RPG can convert the program to COBOL or PL/I.

Training Aid DOCUMATIC is assisting junior programmers with their first programs by giving them an English language description of what they have written, making it easier to learn the RPG language and to become productive faster.

Communication with non-DP Types DOCUMATIC provides a way for management to use your programs in simple English with only the basic data processing terms (input, file, etc.).

Audit of Programs Because DOCUMATIC eliminates the jargon associated with RPG, financial management can audit programs with no knowledge of the language.

Lifelong Less Error Prone DOCUMATIC output is *significantly* more readable than the RPG code. For example, reasons IF TAX IS BLANK OR INPUT1 rather than indicator numbers are used wherever possible.

Updating Take Less Time Because the documentation is English, because the documentation is uniform, because the documentation is accurate, DOCUMATIC can substantially reduce the time required for program maintenance.

Accurate Documentation Documentation produced by the programmer from original specifications, or before the program is completed, does not usually correspond to the final product. Because DOCUMATIC takes the information from the program itself, your documentation is accurate as well as current.

Standardized Documentation With manual methods, it often becomes necessary to decipher the documentation after it is written. DOCUMATIC provides a uniform method of documentation.

Encourages Standards Because DOCUMATIC produces documentation in a standard format, it encourages programming uniformity of record layouts, data names, modular calc specifications, etc.

Total Program Documentation DOCUMATIC produces a complete source program description . . . in minutes . . . no part of the program is left out.

BUY SELL SWAP

WE WILL PURCHASE FOR CASH

Your surplus IBM UNIT RECORD and COMPUTER EQUIPMENT: KEY PUNCHES, SORTERS, VERIFIERS, COLLATORS, REPRODUCERS, INTERPRETERS, TABULATORS: 024, 026, 029, 046, 047, 056, 069, 063, 082, 083, 084, 085, 087, 088, 108, 188, 407, 514, 519, 552, 548, 557, 1401 & 360 SYSTEMS, TAPE DRIVES.

Advise model, serial, special feature numbers, maintenance agreement status, availability date, for our quotations.

Computerworld Box No. 3055

TELETYPES — COUPLERS
Fixed — Mobile Portable
(Buy — Lease — Rent)
Supplies
Paper — Tape — Ribbons
COMPUTER SOLUTIONS INC.,
50 Washington Terr.
East Orange, N.J.
(201) 678-8300 — (212) 349-1531

WANTED TO BUY

Honeywell 200 4 Tape System at least 16K storage

Computer Property Corp.
111 Broadway
New York, New York
212 732-2863

BUY—SELL—LEASE

Unit Record Equipment
Disc Packs
Computer Leasing

Michiana Leasing Corp.
1814 South Main St.
South Bend, Ind. 46613
(219) 288-1431

PAYROLL — 360/30/32K BAL/DOS/$2,250
Highly successful local and national history
Flexible to your needs — Ask us!
Multiple firms and multiple pay can be processed at same time.
PEOPLES DATA CENTER
120 NORTH CENTER STREET
BLOOMINGTON, ILLINOIS 61701
309 828-6821

COMPUTER ACQUISITIONS CO
WANTS
COMPUTERS, ALL MAKES
UNIT RECORD EQUIPMENT
(404) 636-8000 - DDD 29105
ATLANTA, GA. 30329

IBM KEYPUNCHES
IMMEDIATE DELIVERY
At our plant we remanufacture all types of unit record equipment.
Universal Processing Corp.
226 Highland Parkway
Roselle, N.J. 07203
(201) 241-7422

FOR SALE
IBM INTERPRETER — MODEL = 548
IBM 360/30 SYSTEM 1.5 MS
CONTROL UNIT =2821 — MOD. II
CARD READER =2501
All under IBM maintenance contract
Principals only.
Computerworld Box No. 3044

IBM Computer Systems and Punched Card Equipment Bought and Sold.
International Computer Equipment, Inc.
I-C-E Inc.
1231 25th St. N.W.
Washington, D.C.
202-293-3910
See Ad On Page 7

WHO SAYS PEOPLE DON'T READ CLASSIFIED ADS?

IBM 082 SORTER $700.00 — top condition 220v
SORTER RACK (TAB) like new $25.00
1443 39CH Print bars with "/" for "$" "—" for "."
Mate receptacle for 1440 system
UTAH WHOLESALE GROCERY
P.O. Box 269
Salt Lake City, Utah
Phone: (801) 467-5401

FOR SALE
2401 TYPE TAPE DRIVES
$14,000 EACH
Four 9 track, 800BPI Potter type drives available immediately. Drives are less than one year old and in perfect working condition.
TIME BROKERS, INC.
380 Lexington Avenue
New York, N.Y. 10017
(212) 867-5661

WANTED
IBM 1401 or 1440, 8K or more. Send full details, including Availability, Features, Price and Serial Numbers, to:
Box 3046
Computerworld

New Registrations

INTERACTIVE LEARNING SYSTEMS, Inc., 1616 Soldiers Field Rd., Boston, Mass., a computer educational firm, filed to register 125,000 shares of common stock. Proceeds, at $10 per share, intended for expansion, acquisitions, and working capital. No underwriting is involved.

COMPUTER TRAFFIC CONTROL, Inc., Burlington, Mass., a computer services company, filed to register 150,000 shares of common stock. Proceeds, at $4 per share maximum, intended for research and development and for general corporate purposes. The underwriter is Diamond & Co., 55 Broad St., New York.

MADJAC DATA CO., Inc., 74-09 37th Ave., Jackson Hts., N.Y., a computer service company, filed to register 240,000 shares of common stock. Proceeds, at $2 per share, intended for general corporate purposes and working capital. The underwriter is Hopp & Co., 180 Main Ave., Passaic, N.J.

DATA RESEARCH CORP., 2601 E. Oakland Park Blvd., Ft. Lauderdale, Fla., a manufacturer of digital instrumentation and direct digital control systems, filed to register 330,000 shares of common stock. Proceeds, at $3 per share, intended for general corporate purposes and working capital. The underwriter is S.D. Fuller & Co., Inc., 39 Broadway, New York 10006.

COMPUTER SCIENCES CORP., 1901 Avenue of the Stars, Los Angeles, Calif., a computer services company, filed to register 292,861 shares of common stock. Proceeds, at $60 per share maximum, intended for repayment of debt. No underwriter is involved.

COMPUTER SYMBOLIC, Inc., McPherson Square Office Bldg., Washington, D.C., a computer software company, filed to register 500,000 shares of common stock. Proceeds, at $15 per share maximum, intended for general corporate purposes and acquisitions. The underwriter is H.L. Federman & Co., Inc., 50 Broadway, New York 10006.

COMPUTER TECHNOLOGY, Inc., 65 E. Southwater, Chicago, a computer services company, filed to register 585,536 shares of common stock. Proceeds, at $35 per share maximum, intended for repayment of debt. The underwriters are Lehman Brothers, 1 William St., and Goldman, Sachs & Co., 55 Broad St., New York 10004.

COMPUTER CENTER, Inc., 423 W. Monument St., Baltimore, Md., filed to register 195,000 shares of common stock. Proceeds, at $8 per share maximum, intended for working capital and general corporate purposes. The underwriters are Abbott, Proctor & Paine, 830 E. Main St., Richmond, Va., 23214, and Winslow Cohn & Stetson, Inc., 26 Broadway, New York 10005.

AUTOCOMP, Inc., 4720 Montgomery Lane, Bethesda, Md., a computer information systems company, filed to register 200,000 shares of common stock. Proceeds, at $10 per share maximum, intended for repayment of debt, working capital, and general corporate purposes. The underwriter is Mason & Co., 2800 Washington Ave., Newport News, Va.

INTERNATIONAL TIMESHARING CORP., 4920 W. 77th St., Minneapolis, Minn., a computer services company, filed to register 300,000 shares of common stock. Proceeds, at $10 per share maximum, intended for general corporate purposes. The underwriter is Dain, Kalman & Quail, Inc., 110 S. 6th St., Minneapolis, Minn.

NORTH AMERICAN COMPUTER AND COMMUNICATIONS Co., One Center Plaza, Boston, a computer time-sharing and communications systems company, filed to register 600,000 shares of common stock and 600,000 warrants to purchase 300,000 common shares. These will be offered for public sale in units, each unit consisting of one share and a .21-month warrant to purchase a half share (exercisable at $6 per share). Proceeds, at $5 per unit, are for computer and communications equipment and working capital. The underwriter is Charles Plohn & Co., 200 Park Ave., New York.

PROGRAMS AND ANALYSIS, Inc., 486 Totten Pond Road, Waltham, Mass., a data processing services organization, filed to register 100,000 shares of common stock. Proceeds, at $10 per share maximum, will be used to purchase a GE-430 computer time-sharing system. The underwriter is Eikins, Morris, Stroud & Co., Stock Exchange Bldg., 17th and Sansom Sts., Philadelphia.

OATA 100 Corp., 4444 W. 76th St., Edina, Minn., a computer terminal systems company, filed to register 350,000 shares of common stock. Proceeds, at $10 per share, are intended to finance the company's development and operating costs. The underwriter is Kleiner, Bell & Co., Inc., 9756 Wilshire Blvd., Beverly Hills, Calif.

R/G COMPUTING AND PROCESSING, Inc., 7120 Harwin Drive, Houston, a company engaged in acquisition and operation of business in biotechnical and scientific fields, filed to register 200,000 shares of common stock. Proceeds, at $10 per share maximum, intended for acquisition and operation of other businesses, research and development, and development of sales and marketing programs. The underwriter is Collins Securities Corp., 74 Trinity Place, New York.

MAGNETIC HEAD Corp., 95 Marcus Blvd., Hauppauge, N.Y., a company engaged in the development, manufacture, and sale of magnetic recording heads, components, and related equipment for use in digital and analog computer systems, filed to register 208,000 shares of common stock. Proceeds, at $7.50 per share, intended for purchase of equipment, research and development, expansion of facilities, and working capital.

MID-AMERICA LEASING, Inc., 6815 W. Capital Drive, Milwaukee, Wis., an office machine and data processing equipment leasing company, filed to register 200,000 shares of common stock. Proceeds, at $5 per share maximum, are for reduction of debt and working capital. The underwriter is Fredrick & Co., Commerce, Inc., Cudahy Tower, Milwaukee, Wis.

DATA PROCESSING FINANCIAL & GENERAL Corp., 299 Park Ave., New York, an EQP equipment leasing company, filed to register $35,000,000 of senior subordinated debentures, due 1989, and warrants to purchase common stock to be offered for public sale in units at $1000 per unit. Proceeds, intended for purchase of IBM computers, data center and time-sharing operations, and new fields of activity. The underwriter is Allen & Company, Inc., 30 Broad St., New York.

WILKINSON COMPUTER SCIENCES, Inc., 200 Sweitwater Ave., Bedford, Mass., a manufacturer of a small general-purpose digital computer, filed to register 285,000 shares of common stock. Proceeds, at $10 per share, intended for general corporate purposes. The underwriter is S.D. Fuller & Co., Inc., 26 Broadway, New York 10004.

COMPUTER DYNAMICS, Inc., 1760 Solano Ave., Berkeley, Calif., a computer services company, filed to register 142,850 shares of capital stock. Proceeds, at $8 per share maximum, intended for general corporate purposes and for working capital. The underwriter is Hampstead & Quist, 2502 Russ Bldg., San Francisco.

AGS COMPUTERS, Inc., 21 E. 40th St., New York, a computer services company, filed to register 100,000 shares of common stock. Proceeds, at $3.50 per share, intended for general corporate purposes and for working capital. The underwriter is Grimm & Davis, Inc., 54 Wall St., New York.

NATIONAL OATA PROCESSING CORP., 119 Second Ave., S.E., Cedar Rapids, Iowa, a computer services company, filed to register 120,000 shares of common stock. Proceeds, at $6 per share maximum, intended for debt repayment, general corporate purposes, and working capital. The underwriter is R.O. Dickinson & Co., 910 Grand Ave., Des Moines, Iowa 50309.

COMPUTER ANALYSIS, Inc., 820 Munray Bldg., Baltimore, Md., a company which develops and promotes computer services in preparing income tax returns, filed to register 100,000 shares of common stock. Proceeds, at $6 per share, intended for research and development, marketing, acquisitions, working capital, and general corporate purposes. No underwriter involved.

SECURITIES AUTOMATION COMPUTER GENERAL Corp., 33 Rector St., New York, a company which proposes to develop and operate a computerized system for the New York and American Stock Exchanges, has filed to register 230,000 shares of common stock. Proceeds, at $10 per share, intended for working capital and general corporate purposes. No underwriter involved.

OATANAME, Inc., 211 W. 61st St., New York, an EOP services company, filed to register 125,000 shares of common stock. Proceeds, at $4 per share, intended for addition to working capital and for general corporate purposes. The underwriter is Hill, Thompson, Magid & Co., 70 Wall St., New York.

Acquisitions

TEWKSBURY, Mass. — Wang Laboratories, Inc. has acquired a substantial interest in the recently formed Digital Information Storage Corp. and has an option to acquire the remaining interest in the corporation at a later time. The new corporation develops and manufactures magnetic disk storage systems and other peripheral equipment.

Wang also announced the acquisition of Medical Systems and Data Corp. of Boston. Medical Systems was organized last year to supply services related to computerized medical data analysis.

BALTIMORE — Computer Counseling, Inc. has announced its acquisition of Data Center, Inc., a privately owned Baltimore computer service company. Data Center, Inc. prepares payrolls and does billing, inventory control, and accounting work on its own IBM 360/30 computer for corporations in the Baltimore-Washington area.

Data Center will continue to be headed by Albert Stoecker, a founder and the general manager of the company, and will operate as a wholly owned Computer Counseling subsidiary.

WALTHAM, Mass. — The acquisition of Integrated Systems & Designs, Ltd. of Crawley, Sussex, England, has been approved by the Board of Directors of Data Architects, Inc.

Integrated Systems & Designs, which manufactures total computer-based information systems, will operate as a wholly owned subsidiary of Data Architects, Inc., under its president, Stefan E. White.

Data Architects, Inc. plans to market these systems in the United States. Integrated Systems & Designs will market Data Architects' proprietary management information systems in Europe and the British Commonwealth.

WARREN, Mich. — A I M Companies, Inc. has reached an agreement to acquire Datastations Corp., Los Angeles. The acquisition will involve an undisclosed amount of A I M common stock and will not be completed for several months, pending fulfillment of certain conditions. It is anticipated by A I M that Datastation's sales will be approximately $4.5 million dollars this year.

New Time-Sharing Plotters Will Be Produced First

WILTON, Conn. – Time Share Peripherals Corp., successor to Meier Associates, has been formed to produce quality instrumentation for the time-share market.

The company is starting out with a new concept in time-share plotters.

Their current product, designated the TSP-12, is claimed to be a fast, economical plotter controller that can drive a pen recorder or CRT display in any direction without change in recording speed.

Ted Meier, president of the new organization, was formerly a project engineer at Perkin-Elmer, where he worked with digital instrumentation.

Meier Associates, his previous company, was responsible for designing and delivering systems for Johnson & Johnson and Dartmouth College which interface test instrumentation with time-share computers.

The new company states it has several other products on its drawing boards or in the prototype stage at its offices and plant at Danbury Rd., Wilton.

Cavanagh Adds Computers

NEW YORK – Cavanagh Leasing Corp. has formed the Cavanagh Computer Leasing Co. which will operate as a division of the parent firm.

The computer division will specialize in the lease financing for IBM 1130 and 360/20 computers and Univac 9200 and 9300 computers.

Nathan Samuelson has been named president of Cavanagh Computer Leasing. A graduate of the City College of New York and the Yale University Law School, he has been in the leasing industry since 1962 when he started the National Negotiable Leasing Service.

Computer Industries, Inc. Opens Field Services Div.

DALLAS – Computer Industries, Inc., the manufacturing subsidiary of University Computing Co., has established a field services division to combine the field service capabilities of the company's Graphic Systems Division, Van Nuys, Calif., and its Data Communication Systems Division, Dallas.

Both divisions manufacture computer peripheral equipment.

Bert R. Harrigan, vice-president of the new division, said it provides both maintenance services for CII and other peripheral equipment manufacturers, and operations and maintenance programs for electronic data processing systems users.

Infitronic, Inc. Will Provide General Computer Services

CHARLOTTE, N.C. – American Credit Corp. has formed a new subsidiary, Infitronic, Inc., which will provide general computer services to business and industry.

Initially Infitronic's marketing efforts will be concentrated in the Carolinas.

Services immediately available from Infitronic will include systems analysis and design, programming, and data processing. Market research will be conducted to determine the need for additional services such as management consulting, total facilities management for data processing installations, specialized software packages, education, and time-sharing programs.

Robert L. Blackwelder has been elected president of Infitronic.

New Companies

Opportunity to Specialize In Urban Applications

WASHINGTON, D.C. – Opportunity Systems Inc. recently was organized to provide systems analysis, computer programming, and related services to government, industry, and other users.

George H. Walker, formerly manager of marketing and customer relations for Software Systems, Inc., will serve as president of the new company.

Wolsey A. Semple, professor at Howard University's School of Engineering and director of the Digital Computer Laboratory, will serve as vice-president.

A special concern of the corporation is providing expertise in computer technology in the field of urban applications.

D/P Computer to Consult

EVANSVILLE, Ind. – A new management consulting firm, D/P Computer Services, Inc., has been formed to provide professional advice and assistance in the fields of data processing and modern information technology. Special emphasis will be placed on commercial or business use of electronic data processing.

Other major areas of the firm's practice will include office and administrative services, management education and training, and recruitment of executive, managerial, professional, and technical personnel.

Emphasis Set on Software For Time-Shared Systems

WASHINGTON, D.C. – McManis Associates, an international management and research consulting firm, has started an affiliated computer software firm, Continental Software Services, Inc.

The new firm will provide services in the areas of business and scientific problem analysis, systems design, software development, and computer and scientific programming.

Continental Software Services will place emphasis on designing special-purpose, proprietary software packages for time-shared computer systems.

Consultant Opens Office

PALO ALTO, Calif. – Louis Feldner, data communications consultant, has opened an office specializing in analysis, marketing, and training related to computers and communications at 200 California Ave.

Feldner is currently a consultant to the FCC, and is also chairman of the legal/social issues subcommittee of a new IEEE group devoted to computer-communication systems.

TIME FOR SALE

PHILADELPHIA

360 – 30, 32K with two 2415 9-track tapes, three 2311 Disk Drives and 1400 COS.
Short runs on very short notice. Large blocks of prime time available.
Ask for Mr. Sorath or Mr. Wood.
215-WA 7-7080

N.Y. AREA

IBM 360

32K, 4 Disks, 1403, 2540. A brand new system featuring COBOL, FORTRAN, ASSEMBLER RPG, PL/I compatibility. We have large blocks of time available on second and third shifts and we will offer big discounts for large quantity, long-term purchases. Economical, plenty of power: ideal for heavy print jobs or for the software house that can't afford a whole machine. We will tailor a resident pack to your requirements. Limited office space may be available at reasonable rents.

Call immediately
(212) 687-3406

UPSTATE NEW YORK

Rockland County
IBM 360/30, 65K, Tape-Disk, DOS-OS, full compatibility. Call
W. E. Barry (914) 634-8877
Informatidn Science, Inc

Who Says People Don't Read Classified Ads?

CHICAGO AREA

$400 week end special
• Any Shift On 360 40,128K
• 1410 Emulation • 1401 Compatibility
• Your Operator
COMPUTYME
209 West Jackson
Chicago, Ill. 922-6684

IBM 360/40, 65K, Five Model 3 Tapes, Two 2311 Disks, 1403 N1 Printer, 2540 Rdr./Pch., 2nd Shift 3rd Shift, and Weekends. Call Mr. Vieland at 312-236-4700.

MASSACHUSETTS

1 2 8 KEY PUNCH 24 HOUR

11 Spring Street, Waltham, Mass. Tel.: (617) 899-4851

COMPUTER SERVICE IBM 360
3 Shifts Per Day
7 Days A Week
Convenient, Full Service
128 Location
• 65K30, All Features
• 5 60K,9 Tapes, 7 or 9
• 3 2311 Disks
• 2 Selectors, 1 Multiplexer
• Keypunches, Verifiers, etc.
• Programmers and Operators
• Offices, Storage, Telephones
• Coffee, Complete Facilities
• Supplies and Systems
• Emergency Services
• Rates Tailored To Your Needs
INFORMATION DYNAMICS CORPORATION
80 Main St.
Reading, Mass. 01867
Telephone 617-944-2224
24 Hours A Day

360/40 COMPUTER TIME
• 131K, 2 channel • All Shifts: $60-$120/hr. • FULL SHIFTS also available at competitive prices.
• All peripherals • Keypunching • Programming • Messengers • Two 360/30's also • Application packages
Call: 212/687-2100
L. Kressner
SSI
STRATEGIC DATACENTERS, INC.
25 West 43rd Street—New York, N.Y. 10017
A Subsidiary of STRATEGIC SYSTEMS INC
corporate offices: 405 Park Avenue New York City 10016
FACILITIES ALSO IN WASHINGTON, D.C.

WE ARE NOT COMPUTER TIME?
A SERVICE BUREAU
JUST A REAL TIME SHOP WITH COSTLY IDLE BACK-UP
N.Y.C. & L.A.
2-512K 360-50's 2314's 2311's 1410/7010 Emulation 7 & 9 TRACK TO 1600 BPI
(III's & VI's) 2701's 2703 2260's TELETYPES
DETROIT
64K 360/30 2311's 7&9 TRACK 2703 2260's
QUICK DRAW — COMPUTERIZED PROGRAM FLOW CHART AVAILABLE OS-DOS
COBOL FORTRAN PL/I GPSS MPS PERT ETC.
NYC – 212-425-6633 X 19
LA – 714-776-6580
DET. – 313-273-5300
HELP

$23.00 Per Hour
MIDTOWN MANHATTAN
360/30
32 K-BYTES
4-2311 DISC DRIVES
1403-1100 LPM PRINTER
2540 READER
We have a large block of Time available for 1/2 of 2nd Shift, all of Third Shift, and all Weekends. Economical, plenty of power; ideal for heavy print jobs or a Software House that cannot afford a whole system.
For further information please call Mr. Fusco or Mr. Brite at
OX 5-4700

EDP Promotions

Of	Is Now	Was
James M. Ward	Computer Sciences Corp. Los Angeles	Branch Manager
A.G. Thorne	Ampex Corp. Redwood City, Calif.	Manager Data Systems Dept.
J. Kelly Sumner	Trust Company of Georgia Atlanta, Ga.	National Sales Manager End User Area
Paul Konkel	Computer Usage Co., Inc. New York	Second Vice-President
Harvey Cohen	Scientific Data Systems, Inc. El Segundo, Calif.	New York District Manager
Michael Black	Programming Sciences Corp. New York	Vice-President & General Manager, Computer Systems Division
Paul I. Anderson	3M Company St. Paul, Minn.	Director of Communications
		Marketing Manager Magnetic Products Division

Product Manager

Operations Officer Computer Systems Dept.

Manager Philadelphia Office

Director Marketing and Systems Products

Manager Washington, O.C. Office

Product Sales Manager, Random Access Memory Devices

J.M. Ward

A.G. Thorne

J.K. Sumner

P.I. Anderson

DON'T HIRE AN
EDP COUNTERFEIT
BEFORE HIRING GET AN EDP PERSONNEL REPORT

CONTAINS OBJECTIVE EVALUATION OF EDP TRAINING, EXPERIENCE, AND CAPABILITY.....PLUS EMPLOYMENT VERIFICATION. PLUS CHECK OF PERSONAL, CREDIT AND LEGAL BACKGROUND.

RUSH SERVICE AVAILABLE.

SEND COPY OF RESUME WHICH WILL BE RETURNED WITH COMPLETED REPORT. MARK RESUME

B FOR BASIC REPORT $25
C COMPREHENSIVE RPT $65
E EXECUTIVE REPORT $100

SEND TO: EDP PERSONNEL REPORTS DIV. NATIONAL CREDIT BUREAUS, BOX 49, WAVERLY, PA. 18471.

Rare opportunity for capable sales personnel experienced in data collection equipment field. Established company embarking on growth program is setting up regional offices in several geographical areas. If you have proven record in the field, leadership ability, knowledge of data collection equipment, send resume to Personnel Department
COLORADO
INSTRUMENTS, INC.
One Park Street
Broomfield, Colorado

Senior Programmer Analyst
Northern Vermont — skiing, fishing and hunting paradise. Desire senior man to implement OLRT Operations Control system for leading motor freight carrier. 360/40, 2314, 80 terminal devices. Rare opportunity for challenging professional growth in a small New England Community. Reply in confidence to:
David L. Brown
St. Johnsbury Trucking Company
St Johnsbury, Vermont
802-748-2381
An Equal Opportunity Employer

Subscribe To COMPUTERWORLD
$9.00 - 1 Year
60 Austin Street
Newton, Mass. 02160

Programmers

Advanced programs at Lockheed have created a number of openings for computer programmers in many diverse areas. Work involves business information processing, advanced aerospace projects, hospital information systems and diagnostic test. An applicable degree and at least two years' experience is required for all positions.

Administrative Programmers
Assignments include real-time and batch systems supporting finance, manufacturing, procurement, engineering, product assurance, logistics, personnel and many others. Experience should be in business applications of large-scale computers.

Scientific Programmers
Test data programming on advanced aerospace projects. Should have large-scale CDC experience.

Hospital Systems
Develop on-line systems and COBOL programs for hospital's data management and business offices. IBM 360/DOS and assembly language background desirable.

Computer Program Development
Perform diagnostic tests based on symptom input. Experience should be in equipment fault isolation. IBM 360/65 experience desirable.

For additional information please write J. N. Love, Professional Placement Manager, P.O. Box 504, Sunnyvale, California 94088. An equal opportunity employer.

LOCKHEED
MISSILES & SPACE COMPANY
A GROUP OF LOCKHEED AIRCRAFT CORPORATION

MARKETING MANAGER
Time-Shared Computer Terminals
Our product has been enthusiastically received as an advancement in the fastest growing segment of the fastest growing industry in America.
You will recruit and manage the sales force, do top level selling, manage advertising and P.R., and contribute to basic policy.
You will get salary plus ground floor stock in our aggressive young company.
TYPAGRAPH CORPORATION
7252 Convoy Ct.
San Diego, California 92111

H200 COMPUTER OPERATOR
top notch:
for excellent job
Mr. MacDonald
329-2600
R.A. GOSSELIN and COMPANY, Inc.
890 PROVIDENCE HIGHWAY · DEDHAM · MASSACHUSETTS 02026

SYSTEMS ANALYSTS
A variety of challenging computer-oriented system designs are under way at Pan Am. Candidate should have a solid data processing background with at least 3 years related experience.

PROGRAMMERS
Openings exist at all levels of programming, both commercial and real-time. Candidates should have at least 1 year of programming experience in either 360 BAL, 7080 or 1401 Autocoder, or 516 DAP.

Salaries are commensurate with ability and experience. Assignments are in the New York City area. Liberal employee benefits including world-wide travel privileges. Please send your resume, (do not phone or apply in person) including salary requirements to:

J.E. McGuire, Assistant Vice President
PAN AM
PAN AMERICAN WORLD AIRWAYS, INC.
Pan American Building, New York, N.Y. 10017
An equal opportunity employer

ACM & Its Dollars — Part 2

Road to Bankruptcy Is Paved With Good Intentions

By Alan Taylor

The presidency of Prof. Bernard A. Galler and the tenure of the 1968-69 ACM Council started June 1, 1968. There was more than $160,000 in the bank. Two hundred and thirty days later, on Jan. 20, ACM officials could sign no more checks. ACM, to quote its own treasurer, was broke.

Why?

No one knows for sure. But here is an account of what happened, pieced together from available documents.

It would not be true to say that the 1968-69 fiscal year began happily. The previous council had been unable to agree on a budget. After a protracted meeting in a Boston motel, the council had agreed on an expense ceiling of $1.9 million (up from $1.4 million in 1967-68) but had not accepted all budget assumptions and had left the details to the ACM Executive Committee.

The executive committee is an interesting operation. It consists of three elected council members – the president, the vice-president, and the secretary. Galler, as vice-president, had served on the previous executive committee, as had Donn B. Parker, the secretary. The only newcomer was Walter M. Carlson, the new vice-president.

Members of the society who have read the ACM Constitution may know of the existence of this committee, but certainly no one could have known of its existence from the election compaign. It was never mentioned.

Yet often it is the executive committee that really runs the ACM, with the council left powerless. This was the case with the 1968-69 budget. The executive committee set it up, but it never received complete approval by the council.

August Council Meeting

At its first meeting, the new council set the subscription price for the ACM *Journal*. The *Journal*, formerly supplied free to all members, had been made optional. Some council members wanted to charge $5 for it; the editorial board wanted to charge $2. The council compromised on a $3 price.

Treasurer Walter Hoffman promptly lashed the council for "financial irresponsibility." He said it could not go on ignoring the financial facts and simply doing what it would like. He was supported by Herbert R.J. Grosch, a member-at-large, and Anthony G. Oettinger, the past president. Grosch moved that the loss resulting from the $3 subscription rate should be made up by taking the equivalent amount from the editorial board's budget. (The editorial board had strongly recommended the lower price.) Grosch said that the society's finances had to be safeguarded. The council tabled his motion.

Next the unaudited figures for the previous year were distributed. These showed that the previous year's operations had not been a financial success, even if they had not been a failure. Receipts had exceeded expenses by only $23,366, missing the budgeted $85,000 by more than 70%.

Grosch demanded that the council keep more in touch with what was going on. He moved that the council meet more frequently, and the motion was seconded by Richard Reed (acting for Regional Representative Carl Hammer). The motion was defeated 18-2 after other members opposed it as unnecessary.

After the meeting, a reporter heard some members of the council talk about Grosch's "disruptive" demands. He overheard talk of having Grosch formally expelled from the council.

In its Sept. 4 issue, *Computerworld* pointed out that some of the recorded expenditures appeared to be outside the council authority because they were both unbudgeted and over $25,000.

On Sept. 9, Galler wrote to the ACM Committee on Constitution and Bylaws (a presidential creation, not an elected body), asking that the $25,000 limitation be removed. The committee agreed and wrote back nine days later, recommending its removal. That was some of the fastest action seen during the 230 days.

December Council Meeting

Four months later, the treasurer's projections for the financial year already were showing that the society budget was going to be out of balance by an estimated $97,000. Instead of a $94,000 surplus, the year would probably result in a $3000 deficit. Except for an unbudgeted $86,000 windfall from the American Federation of Information Processing Societies, the projected deficit would have been $89,000.

Treasurer Hoffman wrote: "From a purely financial point of view, continuation of past policies is simply no longer possible. . . ACM is essentially broke." This report was distributed to council members at their second meeting, in December. Verbally, the treasurer seemed resigned, remarking only that the new council was as financially irresponsible as the last one.

He did, however, note that the accounting base for the Las Vegas ACM show in August had been handled differently from the way in which it appeared in the budget and that, therefore, council members could not compare the figures. As a result, the financial failure of the show, a substantial cause of the financial crisis, did not become common knowledge for another two months. Hoffman gave no indication that there was an immediate crisis on hand, and in less than five minutes the council moved on to other matters.

Financial Safeguards Dismembered

The second council meeting did take some action on financial matters. For one thing, the council changed Section 9 of the ACM Bylaws. This section was the first "financial safeguard." It provided for an audit of the ACM's operations to be conducted independently from the council. Under the old procedure, the president nominated an ACM member who was not a member of the council to employ a public accountant to audit the books.

On Hoffman's motion, the council decided to reserve to itself the appointment of an auditor.

The council was not able to act quite so precipitously on the other financial change that it wanted. This was removal of the ban on any unbudgeted expenditure of more than $25,000. From the ordinary member's point of view, this was another – and perhaps the strongest – financial safeguard. The council could not just change it, as it was in the constitution. It had to refer the matter to the membership, which it did by a unanimous vote.

Herbert Grosch, supported again by Carl Hammer, then continued his apparently unpopular position of asking for better control of the operations. He proposed that meetings of the executive committee and the editorial board, both of which were carrying out major financial operations, should be open to members of the council. He was again opposed, but this time not as directly. At the request of Richard Canning, a member-at-large, and Aaron Finerman, chairman of the editorial board, the motion was tabled by a vote of 18-4, thereby effectively killing it.

Frederick P. Brooks, Jr., a member-at-large, and Grosch then moved to have the treasurer become an elected, instead of an appointed, officer and to have him included on the executive committee. The motion was defeated.

Brooks and Hammer then moved to have the council set up budget policies before Jan. 1 and to have the executive committee draft the budget and return it to the council 60 days before its next meeting, for approval at the next meeting. The motion passed 17-1.

That was the end of the 1968-69 council's second meeting, as far as financial matters went.

The days of the council's innocence were then over. A few days later, ACM officials accepted the facts that had been implicit in the figures and reports of a year. But the delay in recognizing the facts had committed the ACM to a number of actions – such as moving into a new headquarters at the cost of $100,000 – which might never have been approved if the full facts had been widely known.

It can reasonably be said that the delay in accepting the obvious allowed many fundamental actions to go through, perhaps beyond the possibility of recall. (In the boxes are some of the actions which might have been changed if ACM members had realized what was happening.

However, to some extent, all this is immaterial to members. After all, what many of them are interested in is the membership benefits they get, rather than how well the society itself is doing. Hoffman said that ACM membership is "one of the biggest bargains imaginable." Just how big it really is will be discussed next week.

The Importance of Dates

Actions that might have been changed if members had known society was going broke:

In December	In August	In May	One Year Ago
● Artips contract might have been examined for financial implications.	● $100,000 headquarters move might have been re-examined.	● $500,000 additional budget expenditure might have been cut substantially.	● President Galler might have lost election as he was identified with previous administration.
● Auditing safeguard might have been retained.	● $1000 honorariums for Survey and Tutorial Journal might not have been approved.	● A proper budget might have been adopted, and published.	● All candidates might have emphasized financial stability needs.
● Council members might have decided what services to drop.	● $120,000 unbudgeted overspending in 1967-68 might have been investigated.	● 1967-68 account might have been audited independently from council.	● Herberi Grosch might have found allies in new council instead of often being voted down 18-2.

CONVERT-A- CODE ANNOUNCES:

1. 1400 TO 360 CONVERSION SERVICE
   - Handles any language-patched object decks.
   - Guaranteed 100% conversion service.
   - 360 ALC source output for BPS, TOS, DOS or OS.
   - Handles 1401, 1440 and 1460.
2. MAGNETIC TAPE UTILITY PROGRAM—CORETAP
   - Through the use of simple control cards you can modify any tape in hundreds of useful ways. For example, you may add or delete characters, records, or files at any point changing upward or downward the record size, block size, file size and number of files on the tape.
   - Minimum system configuration:
     (1) 12K 1401/60 with 2 tape drives
     (2) 16K 360/30 or above with 2 tape drives (DOS or TOS)
3. "PATCHING THE 360 FOR FUN AND PROFIT" (A Programmer's Manual)
   - Thousands of dollars and hundreds of precious computer hours may be saved by patching 360 programs while they are being tested. Convert-A-Code's manual places all of the programmer requirements at your fingertips, in ENGLISH, with examples and illustrations.

REPLY REQUESTING MORE INFORMATION FOR 1, 2, or 3 TO:

CONVERT–A–CODE
Department D-5
30 South Calvert St.
Baltimore, Maryland 21202
Phone 301/752-5772

COMPUTER LEASING

Our Financial Services Division can offer you significant cash savings through a profitable purchase-leaseback arrangement on your IBM System/360.

Send your systems configurations to Mr. Michael Creedon, Vice President, for immediate analysis and evaluation. Or phone him at 212-758-6600.

Commission Brokers Invited

FINANCIAL SERVICES DIVISION

dis Diversified Data Services and Sciences Inc.
660 Madison Avenue • New York, New York 10021

MARKETING REPRESENTATIVE
ISS
INFORMATION STORAGE SYSTEMS

ISS recently announced the 701 Disk Storage Drive which offers the fastest access time open (average 30 ms) of any removable media disk drive in the industry.

We have a challenging position for a self-starting individual to assist in the marketing of disk drives and software packages.

If you have sales experience in OEM, peripheral equipment, software or related areas and want an opportunity to assume increasing responsibilities in a rapidly expanding organization, then we invite you to contact us. All inquiries will be considered confidential.

Please send resume to:

ISS
Dept. C.W. – 1
10435 North Tantau Ave.
Cupertino, Calif. 95014

An equal opportunity employer

Senior Designers Digital Systems

On The Beautiful San Francisco Peninsula

Computer designmen with two-four years' experience in CPU, I/O and related digital systems are needed to assume sole responsibility for the design, development and implementation of systems in MOS large scale integrated circuits. BSEE required.

Located on the San Francisco Peninsula, the area is unequaled in sporting events, educational facilities, cultural and recreational activities. Excellent company fringe benefits. For confidential consideration please forward your inquiry to Mr. M.E. Hawkins, Department CW42, 345 Middlefield Road, Mountain View, California 94040. Fairchild is an equal opportunity employer.

FAIRCHILD
SEMICONDUCTOR
A DIVISION OF FAIRCHILD CAMERA AND INSTRUMENT CORPORATION

WHO NEEDS THIS BOOK?
AND THESE NEWSLETTERS

- Beginners
- Brokers
- Executives
- Engineers
- Accountants
- Libraries
- Students
- Teachers
- Managers
- Stockholders
- Scientists

ORDER YOUR BOOK AND TRIAL TODAY!

(Write for quantity prices)

ARE YOU READY!? The Computer Revolution is Nt.

Don't miss this one time offer: AN INTRODUCTION to the COMPUTER in EASY TO UNDERSTAND Layman's Language, PLUS an 8500 Term Dictionary.

ORDER TODAY for free Computer Company Investment Booklet

Price $14.50 (765 pages)

- 100,000 Computers will be sold this year.
- New Computer Companies are forming at the rate of 40 per week.
- By 1971, 2 million people will be directly involved with computers.

The modern book is the most complete and comprehensive teaching reference available and covers all phases of computers and computing. Includes hundreds of applications. Simple language, illustrations and diagrams, explain to the amateur: computer logic, languages, software, peripheral equipment, acronyms, abbreviations, how to prepare for computers, the changeover, employment opportunities, plus more than 8500 search and Management Science terms. More than 8500 terms and definitions are clearly explained and 29 appendices interestingly studies computer applications in business, education, medicine, accounting, production automation, scores of others. The author, Charles J. Sippl, has taught computer courses for 6 years at 4 California Colleges and Universities and is now publisher of the Newsletters below. SAVE POSTAGE – ENCLOSE YOUR CHECK WITH YOUR BOOK OR NEWSLETTER TRIAL ORDER and receive FREE a 16-page booklet describing the FINANCIAL OPPORTUNITIES IN COMPUTER INDUSTRY, for low cost investment opportunities including a list of 400 computer companies, stock prices, recent gains, etc. PLUS a list of 100 new, upcoming computer co's, many with excellent potential.

$50 VALUE. NOW FREE JUST OUT! A very complete detailed research 70-page SPECIAL REPORT describes the growth of the computer industry and discusses the coming 100,000 computer production year, the "mini-computers" soon, for everybody. The Computer Research Bureau Staff has thoroughly studied and now reports on 45 companies, large and small, which manufacture computers. The evaluations, projections, descriptions are clear, concise. It is yours for $30 or FREE if you send your check for any ANNUAL Newsletter Subscription or for ALL THREE TRIALS

☐ Check Enclosed for Annual Subscription ☐ Send FREE Report

COMPUTER STOCKS are the biggest winners on the market — BY FAR!

STUDENT Edition of the above book. Contains all essential terms, briefer appendices — 327 pages. Perfect Gift for College Students, all must become acquainted with computers. Enclose check with order for $9.50 postpaid. Includes FREE bonus Financial Structure of the Computer Industry.

☐ Student $9.50
☐ Handbook $14.50

Computer Stocks Today, a 12 page financial newsletter for growth investors, emphasizing all markets, analysts, stock buyers with meaningful stock tables on over 400 computer companies plus current news, evaluations and interpretations of the computer industry to keep you CONSTANTLY aware, alert.

☐ 60 Day Trial $15
☐ 1 year $85

Computer Stocks Today — Broker Special — 5 pages, 3 times monthly, contains "HOT" news on selected public computer companies. SPECULATIVE issues. Commentary results of past years, plus projections for coming year. Clear interpretations and information for Better Investment Decisions

☐ 60 DAY TRIAL $15
☐ 1 year $85

COMPUTER PROCESSING UPDATES Popular "State of the Art" Newsletter (twice monthly) keeps all readers thoroughly alert to newest applications of computers in business, industry, research, Education, Finance, Management, Medicine, Gov't, etc. CURRENT, to keep you aware of the New Computer OUTLOOK

☐ 30 day TRIAL $10
☐ 1 year $55

Mail your order and/or check TODAY to: COMPUTER BOOKS, INC.
(include bottom of this ad) 9214 WEST MANCHESTER AVENUE, LOS ANGELES, CALIFORNIA 90045

Director of Systems Engineering

DIGITAL COMPUTER DEVELOPMENT

An experienced digital computer designer is required to fill a top position in a commercial research & development organization.

The Director of Systems Engineering will be responsible for a staff of engineers and programmers who perform the system designs, logic designs, and software development of new products. Computer science techniques are being applied to the development of advanced point-of-sale stations. This includes both terminal and central processor development. 10 years of applicable experience is required. Digital communications experience is desired.

This position offers an excellent starting salary, advancement potential and a complete line of company benefits. If interested, please call collect:

Mr. M.W. Marcovitz
Director of Research & Development
(201) 673-7100, Ext. 2540

or send resume in confidence to Mr. Edward D. Haino, Personnel Manager, 550 Central Avenue, Orange, N.J. 07051

SWEDA
INTERNATIONAL
division of LITTON INDUSTRIES

An equal opportunity employer